BIOLOGICAL ASSESSMENT

FOR

Grizzly Bear and Canada Lynx

Gold- Butterfly Project

Bitterroot National Forest

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Summary

Determination of Effects

This Biological Assessment (BA) analyzes the effects of implementing Gold Butterfly FEIS Alternative 2, which is the maximum program of work proposed. Other alternatives or combinations of alternatives would treat fewer acres and construct fewer miles of road. Effects of other alternatives or combinations of alternatives would therefore be less than those consulted on for Alternative 2.

Implementation of the proposed federal action MAY AFFECT - IS NOT LIKELY TO ADVERSELY AFFECT both the threatened grizzly bear and the threatened Canada lynx. Implementation of the proposed federal action would have NO EFFECT to designated Critical Habitat for the threatened grizzly bear or the threatened Canada lynx because no Critical Habitat for either species occurs within the project area or elsewhere on the Bitterroot National Forest.

Consultation Requirements

In accordance with the Endangered Species Act (ESA) and its implementation regulations and with FSM 2671.4, prior to the final decision on the proposed federal action the Bitterroot National Forest (BNF) is required to request written concurrence from the United States Fish and Wildlife Service (FWS) with respect to determinations of potential effects to the threatened grizzly bear and the threatened Canada lynx.

The effects determination for yellow-billed cuckoo is No Effect. Suitable habitat for this species (riparian areas with cottonwoods and willows) does not occur in the project area, and the species appears to be an accidental vagrant in the Bitterroot drainage. Effects to this species will not be analyzed further in this BA.

1.0 Proposed Project

1.1 Background

The Gold Butterfly Project area totals 55,147 acres, including all of the National Forest System lands (54,368 acres) and private inholdings (779 acres) within the project area boundary. The center of the project area is located about 9 air miles east of the community of Corvallis, Montana (Appendix B, Figure 1). The legal location of lands in the project area can be found in the following townships and ranges on a Bitterroot National Forest visitor map: T6N, R18W, sections 1-12 & 16-18; T7N R18W sections 1-36; T8N, R18W sections 28-30 & 31-34; T6N, R19W, sections 1, 2, 10-15, & 22-27; T7N R19W, sections 1, 2, 11-15, 22-27 & 34-36 (PMM).

There are several vegetation life forms that occur in the project area that range from grass/forb/sparsely vegetated to conifer forest with a dense canopy. Each life form contributes various habitat requirements to different species. Table 1 shows the acres of each vegetation life form in the project area as determined by VMap analysis of satellite imagery.

Table 1: Existing Vegetation Life Forms in the Project Area

Vegetation Life Form Category	Acres in Action Area	Percentage of Action Area
Grass, Forb, Sparsely Vegetated	10,740	19.5
Shrub	162	0.3
Conifer Forest, <25% Canopy Cover	3,347	6
Conifer Forest, ≥25% Canopy Cover	40,813	74
Water	79	0.1
Urban	1	0.0
Non-mapped	6	0.0

There are several vegetation dominance types that occur in the Gold Butterfly project area that range from subalpine fir/Engelmann spruce and whitebark pine habitats at upper elevations to ponderosa pine and dry grasslands at lower elevations. Each vegetation type contributes various habitat requirements to different species. Table 2 shows the acres of each cover type in the action area as determined by VMap analysis of satellite imagery.

Table 2: Existing Vegetation Dominance Types in the Action Area

Vegetation Dominance Type	Acres in Action Area	Percentage of Action Area
Subalpine Fir	11,213	10
Whitebark Pine	3,135	3
Lodgepole Pine	33,703	30
Engelmann Spruce	249	<1
Ponderosa Pine	9,042	8
Douglas-fir	8,479	8
Intolerant Mix (Xeric Forest)	19,443	18
Tolerant Mix (Mesic Forest)	4,157	4
Dry Grasslands	2,122	2
Mesic Shrubs (Willow)	338	<1
Transitional Forest (recently burned)	17,618	16
Sparse Vegetation (rock, etc.)	822	1
Urban	439	0.4
Water	169	0.2
Non mapped	64	0.1

1.2 Description of Proposed Project

The proposed project includes commercial timber harvest, non-commercial thinning, slash-piling, tree-planting and/or prescribed burning on approximately 7,488 acres within the 55,147 acre project area. The proposed treatments would reduce the potential of crown fire behavior in low and mixed severity fire regimes within the Wildland Urban Interface, reduce current and future fuel loadings, and improve forest resilience to natural disturbances.

The project also proposes closure of existing system roads, decommissioning of existing system and undetermined roads, storage of existing system roads, construction of new system roads that would be closed to public motorized use, and improvement and stabilization of existing undetermined roads that would be added to the transportation system and closed to public motorized use. Watershed and fisheries habitat improvement activities such as road improvements, decommissioning and storage of routes to reduce

sediment sources, and rehabilitation of user-built motorized trails are also proposed. These proposed activities are all included within the approximately 55,147 acre project boundary.

1.2.1 Vegetation Management Activities

Vegetation management activities will occur on 7,488 acres (Appendix B, Figure 2). A summary of the treatment types and associated acres is displayed in Table 3 below. See Appendix A for more detail about proposed vegetation management activities.

Table 3: Summary of Vegetation Treatment Types and Acreages in the Gold Butterfly Project

Proposed Action	General Prescription	Acres
Clearcut with Reserve Trees	Regeneration harvest that removes most of the overstory, but some reserve trees remain for snags or forest structure.	761
Seed Tree Cut	Regeneration harvest that removes much, but not all, of the overstory.	271
Shelterwood Cut	Regeneration harvest in which more of the overstory is retained than in the treatments described above.	810
Group Selection	Regeneration harvest that creates small openings within a larger stand.	296
Commercial Thin (Plantation)	Intermediate harvest focused on reducing density in plantations with trees that have reached commercial size.	765
Sanitation and Commercial Thin	Intermediate harvest focused on removal of overstory Douglas-fir that is infected with dwarf mistletoe.	517
Improvement harvest	Intermediate harvest focused on improving species composition and forest health.	2,303
Non-Commercial Thinning Following Commercial Harvest	Follow-up treatments in commercial units with additional non-commercial treatment needs.	3,580
Plantation Thinning	Non-commercial hand thinning of smaller diameter trees in existing plantations.	427
Mechanical Thinning / Fuels Reduction	Non-commercial machine thinning of smaller diameter trees in existing plantations (many of them terraced) that cannot be accessed with modern logging systems.	64
Tree Planting	Hand planting of conifer seedlings in regeneration harvest units if sufficient natural regeneration cannot be ensured.	2,198
Meadow Restoration	A suite of restoration treatments designed to restore/maintain natural meadow habitats.	84

Table 3, continued.

Proposed Action	General Prescription	Acres
Whitebark Pine Daylighting	Non-commercial slashing of competing conifers around healthy whitebark pines.	777
Prescribed fire associated with commercial harvest	Pile burning and/or underburning to reduce fuels in many commercial and non-commercial treatment units.	4,440
Maintenance Burn	Low intensity underburn without pre-treatment designed to mimic historic fire regimes.	414
Total acres of vegetation treatments[1]		**7,488**

[1]Total Area Treated is not the sum of total commercial harvest, total non-commercial thinning, and total prescribed fire because treatments overlap between these categories. In other words, several types of treatment may occur in the same units.

1.2.2 Transportation System Activities

The proposed action recommends very few changes to system roads that are currently open to public motorized use. NFSR 969A along Willow Creek is 0.22 miles long and is currently open to public motorized use year-long. It would be closed to all motorized use and converted to a non-motorized trail. The project would construct about 6.4 miles of new system road, none of which would be open to public motorized use. An additional mile of new system road may be constructed to connect FSR 13135 with the Soft Rock Road on private land to create an additional haul route that would reduce impacts to the Willow Creek Road. This possible addition is included here for a total of 7.4 miles of new system road, although its construction is contingent on procuring agreements with several land owners and the physical feasibility of the route. The project would decommission (remove from the BNF transportation system) approximately 5.8 miles of existing system roads and 16.5 miles of undetermined roads (old roads not currently part of the BNF transportation system) Most of the roads proposed for decommissioning are currently undriveable due to earthen barriers and/or trees and shrubs growing in the roadbed. Only 0.9 miles of these roads require actual work on the ground to minimize erosion. Approximately 5 miles of system roads are proposed to be stored. Stored roads are those that will remain on the BNF transportation system but will be closed and hydrologically stabilized for future administrative use. Another 16.5 miles of undetermined roads would be improved, stabilized and added to the transportation system, but would be closed to public motorized use. In addition, approximately 2.7 miles of existing illegal OHV trails would be blocked and restored. Roads currently open for OHV use will continue to be managed the same.

Approximately 7.7 miles of temporary road, 8.5 miles of tracked line machine trail and 1.1 miles of temporary skid trail would be constructed to access commercial units. All temporary roads and trails would be obliterated after use, which would generally be limited to one operating season. Temporary roads and trails would be closed to public use by a closure order enforceable by law enforcement. Access to temporary roads and trails would by physically blocked if the contractor suspends operations before harvest is completed.

Existing fall, winter and spring travel restrictions for the public would be followed during project implementation. It is likely that harvest operations could occur in some units during the winter, but winter operations are not specified for any unit.

1.3 Design Features and Mitigation Measures

Design Features and Mitigation Measures in the EIS which are relevant to grizzly bear and Canada lynx on the BNF include a food storage order and a prohibition on discharging firearms in areas not open to the public, both of which apply to contractors implementing the project. These are described in detail in Appendix C.

1.4 Forest Plan Management Area Direction/Standards and Goals

The Bitterroot NF Forest Plan does not contain direction specific to management of grizzly bears. The Plan was amended in 2007 to include the Northern Rockies Lynx Management Direction. Provisions of the NRLMD are summarized in Appendix E.

2.0 Consultation History

The Bitterroot National Forest (BNF) does not have any history of consultation with the U.S. Fish and Wildlife Service (USFWS) in regards to project effects to grizzly bears in the Gold Butterfly project area.

The BNF consulted with USFWS on effects to lynx for the Bitterroot National Forest Travel Plan in August 2013. USFWS concurred with the BNF effects call of May Affect – Not Likely to Adversely Affect for the Travel Plan on September 6, 2013. Some of the road and trail closures authorized by the Travel Plan ROD are within the Gold Butterfly project area and will be implemented by the Gold Butterfly project.

3.0 Species Assessment–Grizzly Bear (*Ursus arctos horribilis*)

3.1 Current Status on the Bitterroot National Forest

The grizzly bear was first listed as threatened under ESA in 1975 (USDI Fish and Wildlife Service 1993). Grizzly populations and distributions around the Greater Yellowstone Ecosystem (GYE) and Northern Continental Divide Ecosystem (NCDE) have met and exceeded recovery goals. USFWS delisted the GYE Distinct Population Segment (DPS) of grizzly bears on July 31, 2017 (USDI Fish and Wildlife Service 2017a). The delisting decision was vacated by the U.S. District Court on September 24, 2018. USFWS is currently in the process of delisting the NCDE DPS of grizzly bears. Any grizzly bears that may be present in the Sapphire Mountains do not belong to either the GYE or NCDE DPS, so would likely remain listed until the species is delisted across its range.

USFWS added grizzly bear to their list of threatened, endangered and candidate species that may be present on the BNF east of Highway 93 on September 8, 2017 (USDI Fish and Wildlife Service 2017b). USFWS issued their latest updated list of threatened, endangered and candidate species that may be present on the BNF on July 16, 2018 (USDI Fish and Wildlife Service 2018). Grizzly bear remains on the list. The BNF does not contain any designated critical habitat for grizzly bears.

The entire portion of the BNF in the Bitterroot Mountains was designated as part of the *Bitterroot Grizzly Bear Recovery Zone in the Grizzly Bear Recovery Plan* (USDI Fish and Wildlife Service 1993). All of western Montana west of Highway 93 and south of I-90 was identified as part of the Bitterroot Grizzly Bear Experimental Population Area in the *Grizzly Bear Recovery in the Bitterroot Ecosystem FEIS* (USDI Fish and Wildlife Service 2000a). Neither of these areas includes the Sapphire Mountains where the Gold Butterfly project area is located. Grizzly bears have not been confirmed in the BNF portion of the Bitterroot Grizzly Bear Recovery Zone since the mid-1950s.

The eastern edge of the BNF is about 80 miles west of a direct line between the Northern Continental Divide Ecosystem (NCDE) and the Greater Yellowstone Ecosystem (GYE) recovery zones. The Gold Butterfly project area is approximately 50 miles south of the nearest point of the NCDE Recovery Zone, 125 miles northwest of the nearest point of the GYE Recovery Zone and 15 miles east of the currently unoccupied Bitterroot Recovery Zone. For several years grizzly bears have been expanding south out of the Primary Conservation Area of the NCDE and west from the GYE. Transient grizzly bears could travel through portions of the Sapphire Mountains in the proximity of the project area. The closest grizzly bear sightings to the project area are assumed to be associated with the NCDE population.

There are only two relatively recent confirmed grizzly bear occurrences in the Sapphire Mountains. In September 2002 a grizzly was videotaped feeding on a moose gut pile in the Rock Creek drainage, and the next day appeared on private property on Sunset Bench about 4 miles southeast of Stevensville and about 8 miles northwest of the northwest corner of the Gold Butterfly project area. This bear is thought to have returned to the east side of the Rock Creek drainage (J. Jonkel, pers. comm.). The route that this bear took over the Sapphires is not known, but it is likely that it was near the northern edge of the project area. In October 2012 grizzly tracks were photographed and verified on a road in the head of Sleeping Child Creek, about 19 miles south of the Gold Butterfly project area (*Ibid*).

Other recent, relatively nearby confirmed grizzly bear occurrences not in the Sapphires include “Ethyl’s” brief visit to the foothills of the Bitterroot Mountains west of Florence in May 2014, which was about 25 miles north-northwest of the project area. In 2013 a grizzly was photographed at Georgetown Lake, about 32 miles east-southeast of the project area (J. Jonkel, pers. comm.). In June 2016, two grizzly bear sightings and a report of grizzly tracks were verified in the West Pioneers, approximately 58 miles southeast of the Gold Butterfly project area (*Ibid*).

Recent research that used GPS locations of 124 male grizzly bears to model potential paths for bears to move between the NCDE and the GYE predicted that there was a relatively low probability that the Sapphire Mountains would be a pathway used to connect these two populations (Peck et al. 2017). The model predicted that more likely pathways to connect the NCDE and GYE grizzly bear populations lay further to the east through the Tobacco Root/Boulder Ranges, the Flint Creek/Garnet Ranges or the Bridger/Big Belt Ranges. However, less likely paths along ranges like the Sapphires may involve more exploration among dispersing bears (*Ibid*), and offer plausible routes for grizzly bear dispersal.

The effects of displacement and under-use of habitat are tempered by local resource availability, resource condition, seasonal use, and the number of grizzly bears using an area.

Currently, the number of grizzly bears using the BNF in the Sapphire Mountains area is none to very low, and numbers are expected to increase relatively slowly over time. This is especially true for female grizzly bears. Males move more frequently and over longer distances than females (Proctor et al. 2012). Males have large home ranges and establish home ranges nearly three times further away from their mother's home ranges than do female offspring. Females usually establish smaller home ranges than males that overlap with their mother's home range (Waser and Jones 1983; Schwartz et al. 2003). As a result, females generally disperse over much shorter distances than male grizzly bears (McLellan and Hovey 2001; Proctor et al. 2004). Therefore, female dispersal is a multi-generational process where females must live year-round in an area, successfully reproduce, and offspring disperse into adjacent, unoccupied habitat. Thus, female grizzly bear presence on the forest is likely to increase only slowly if and when population pressure from the NCDE, or the GYE grows.

3.2 Life History

The life history and habitat associations of grizzly bears have been documented in many previous publications and will not be repeated here. See Dood et al. (2006) and USDI Fish and Wildlife Service (2013) for recent summaries.

3.3 Environmental Baseline

3.3.1 Spatial and Temporal Bounds

Within recovery zones, Bear Management Units (BMUs) were identified as analysis areas that approximate a **lifetime** size of a female bear's home range. They were further divided into subunits. Each subunit is an analysis area that approximates the **annual** home range size of an adult female grizzly bear. Subunit size can vary but are approximately 100 square miles and provide the optimal scale for evaluation of seasonal feeding opportunities and landscape patterns of food availability for grizzly bears (USDI Fish and Wildlife Service 2011). For this reason the subunit level scale is an appropriate one to analyze direct, indirect and cumulative effects to grizzly bears from project activities. As the proposed project is not within a recovery zone, there are no BMUs or subunits identified.

Since no BMUs or subunits are identified in the Sapphire Mountains, and no grizzly bears are known to occupy the area, a hypothetical female home range of the size suggested by studies in the NCDE was selected for analysis. This hypothetical home range coincides with the project area, and does include the suite of seasonal habitats required to support grizzly bear reproduction. In particular, this hypothetical female home range includes denning habitat, spring and fall foraging habitat and secure areas. This hypothetical home range includes a wide range of elevations and aspects that support both mesic and xeric forest types, open grasslands, areas dominated by shrubs, and numerous small, wet meadows. The combination of these habitats provides a variety of grizzly food and cover resources throughout the season. In addition, this area contains abundant mid to higher elevation, steeper terrain that provide suitable denning habitat. Much of the project area is within the Stony Mountain IRA, which provides a large expanse of unroaded secure area. Therefore, the analysis for effects to grizzly bears for the Gold Butterfly project was conducted at the project area scale, which is also defined as the action area (Appendix B, Figure 3). There is additional secure area available in either direction along the Sapphire Divide, and in the

adjacent unroaded east slopes leading down to Rock Creek. Even though these additional areas are outside the selected action area, they provide additional contiguous secure areas for grizzly bears in the action area to disperse into.

The action area that was analyzed for effects to grizzly bears contains approximately 223 km^2 (55,147 acres). This is about 28% larger than the average female grizzly bear home range in the NCDE outside of Glacier National Park, which is approximately 175 km^2 (43,243 acres) (Mace and Roberts 2011). This larger action area reflects the hypothesis that grizzly home ranges are likely to increase in size south of the NCDE because potential grizzly habitat tends to become drier and less productive. The action area is large enough to evaluate the ability of the habitat to support grizzly bears, but small enough to not obscure the effects of the proposed action. All of the proposed project actions are contained within this area.

The Gold Butterfly Project Area selected as the action area for this analysis totals about 55,147 acres, including all of the National Forest lands (54,368 acres) and private inholdings (779 acres). 98.6 percent of the area is managed by the Bitterroot National Forest (BNF). The eastern two-thirds of the action area is largely contained within the 44,080 acre Stony Mountain IRA. The western third of the action area is managed for timber production and other resource values, and contains an extensive road system.

The action area includes all land ownerships including private lands. Only National Forest System lands are included in the analysis of direct and indirect effects, whereas all land ownerships within the action area are included in the analysis of cumulative effects. To assess project Forest Plan compliance, open road densities were assessed at the third order drainage scale using the elk habitat effectiveness model (Lyon 1983) as directed in the Forest Plan.

The temporal bounds for the effects analysis is five to fifteen years in which the project will be implemented and all activities, including rehabilitation, will be completed. Longer-term effects to species habitat lasting beyond fifteen years and up to fifty years are discussed in the context of vegetation succession and the effect on habitat changes but not in terms of potential disturbance.

3.3.2 Grizzly Bear Specific Direction

Bitterroot Forest Plan Grizzly Bear Direction

The BNF Plan does not contain specific direction pertaining to grizzly bears or grizzly bear habitat because grizzly bears were not known to occur on or near the BNF when the Plan was signed (USDA Forest Service 1987). However, in June 2014 the entire Anaconda-Pintler (A-P) Wilderness, including the BNF portion of the Wilderness, was included in a new Beaverhead-Deerlodge National Forest (BDNF) Forest-wide food storage order that was adopted and replaced previous orders. The grizzly bear action area for the Gold Butterfly project is not within the A-P Wilderness, and is thus not covered by this BDNF food storage order.

Currently, the Conservation Strategy for the NCDE is under development and open motorized road and trail density (OMRTD) management is managed under each National Forest's Plan for Forests within the NCDE. Forests that are within the NCDE recovery zone manage OMRTD according to Bear Management Units (BMUs) and BMU Subunits. The BNF

is not within the recovery zone of the NCDE and does not follow this Amendment. The BNF does however manage for specific open road densities on a third order drainage scale to provide elk habitat effectiveness (EHE) (USDA Forest Service 1987). The EHE standard results in areas of secure habitat for a range of species including grizzly bears. The Gold Butterfly EIS also contains an analysis of EHE Index, which is analogous to OMRTD because it includes motorized trails in addition to roads. However, there is no standard in the BNF Forest Plan that addresses EHE Index.

The *Grizzly Bear Management Plan for Western Montana* (Dood et al. 2006) contains specific recommendations for public lands. The reports states: "Of particular importance on public lands is food storage to minimize conflicts with wildlife, maintain visual cover along riparian areas for travel and to not increase road densities on the landscape". These recommendations are incorporated into the project as food storage is required for contractors as a design feature in the EIS, and open road densities on the landscape are not increased.

3.3.3 Existing Condition in the Action Area

Denning Habitat

Grizzly bear dens in western Montana typically occur at elevations between 5,900-6,600 feet and at slopes greater than fifty percent in open and open-timbered areas on western, northern or eastern aspects (Dood et al. 2006). There are approximately 925 acres of modeled denning habitat (based on these parameters) on NFS lands within the action area, which is 1.7% of the action area (Appendix B, Figure 4). Almost all of this modeled denning habitat is within the Stony Mountain IRA. About 9 acres of modeled denning habitat occurs within commercial harvest unit 65b, and another 8 acres is within non-commercial unit 105. No grizzly bear dens have been identified in the action area.

Open Motorized Road and Trail Density (OMRTD)

The IGBC observed that management of motorized use has been primarily accomplished through restriction of certain types of motorized use on established access routes, i.e. management of open motorized route densities (Interagency Grizzly Bear Committee 1998). The BNF manages for specific open road densities on a third order drainage scale to provide elk habitat effectiveness (EHE) (USDA Forest Service 1987). The EHE standard results in areas of secure habitat for a range of species including grizzly bears. The EHE standard requires a maximum open road density of 2 miles/mile^2 in "roaded" drainages, and 1 mile/mile^2 in "unroaded" drainages. There are 28 third order drainages wholly or partially within the Gold Butterfly grizzly bear action area. EHE standards are met in 22 of these 28 drainages. Many of the motorized roads in the area counted as "open" for EHE analysis are closed to public motorized use during the fall and spring hunting seasons.

The BNF completed an OMRTD-type analysis across the Gold Butterfly grizzly bear action area. Open motorized roads and trails were defined as any road or trail open to public motorized use at any time during the year. The existing open route density across the action area is 0.83 miles/mile^2 (0.51 km/km^2) (Appendix B, Figure 5). Many of the roads and trails counted as "open" for the open route density calculations are closed during the fall and spring hunting seasons (October 15 to June 15) to provide additional big game security. During the fall hunting season, the existing open route density across the action area is 0.67 miles/mile^2 (0.42 km/km^2) (Appendix B, Figure 6). During the spring hunting season, the

existing open route density across the action area is 0.62 miles/mile^2 (0.38 km/km^2). Although grizzly bears are not the focus of these closures, large carnivores such as grizzly bears will benefit from access restrictions during the spring and fall hunting seasons.

Secure Habitat

Although the Forest Plan manages wildlife security based on elk habitat effectiveness, grizzly bear secure areas greater than 500 meters from any road or trail open to motorized public use at any time of the year were also identified for this project, based on the methodology in Mace et al. (1996). Based on this analysis, there are approximately 61.4 mi^2 of general secure area or 71% of the action area (Appendix B, Figure 5). During both the spring and fall rifle seasons, seasonal motorized road and trail closures increase the secure area within the action area to about 66.4 mi^2, or 77% of the action area (Appendix B, Figure 7).

Table 4. Summary of Open Route Density and Secure Area by Season in the Gold Butterfly Grizzly Bear Action Area

Gold Butterfly Action Area	Summer (6/15-10/14)	Fall (10/15-12/1)
Open Route Density	0.83 mi/mi^2 0.51 km/km^2	0.67 mi/mi^2 0.42 km/km^2
Secure Area (acres and percentage)	61.4 mi/mi^2 (71%)	66.4 mi/mi^2 (77%)

Approximately 35,244 acres (64%) of the action area is closed to over the snow motorized recreation because it is within the 44,080 acre Stony Mountain IRA. Over the snow motorized use was prohibited within the Stony Mountain IRA by the Bitterroot Travel Planning Project FEIS ROD (USDA Forest Service 2016). These areas would provide additional secure areas during the grizzly bear denning period and during the early spring period when bears are starting to emerge from dens.

Cover

Grizzly bear habitat available in the action area was quantified using VMap analysis of recent satellite imagery. This habitat analysis is based on methodology in Mace et al. (1996). Table 1, above summarizes the distribution of bear habitat in the planning area based on vegetation type and canopy cover.

Low elevation spring foraging habitat in the action area occurs on open, south and west-facing slopes along the Burnt Fork Bitterroot River (hereafter referred to as the Burnt Fork), Willow Creek and St. Clair Creeks and other smaller streams, as well as along much of the western boundary of the action area. Most of these slopes are classified as forested by VMap, but tree densities are low and grass and forb growth is profuse in the spring. Narrow riparian areas along most streams also provide spring foraging opportunities. Most of the area classified as Grass/Forb/Sparsely Vegetated by VMap was created by wild fires burning in densely forested areas at mid to upper elevations, and likely provides only limited spring forage opportunities for bears due to lingering snowpack. These fire-created openings are temporary, and will cease to be classified as Grass/Forb/Sparsely vegetated once conifer regeneration advances. Areas classified as shrub types are limited, but shrubs

are a common component of many mesic forest types across the action area. Areas classified as Tree <25% Canopy Cover are forested, but have open conifer overstories. These areas typically have grass/forb or low shrub understories (depending on aspect and elevation) that may provide a reduced density of forage plants compared to openings. Areas classified as Tree >25% Canopy Cover are forested, but have fairly dense conifer overstories that may limit the amount of grasses and forbs. Many of these areas support dense shrub understories.

Areas classified as Grass/Forb/Sparsely Vegetated or Tree <25% Canopy Cover generally do not provide hiding cover for grizzly bears. Areas classified as Shrub generally do p23rovide hiding cover for grizzly bears because the density and height of the shrubs in these areas is adequate to conceal a grizzly bear at 200'. Areas classified as Tree >25% typically are more important for providing cover than forage, and generally do provide hiding cover for grizzly bears due to a high number of boles/acre, low branches, shrubs (at mid to upper elevations) and pockets of regenerating trees.

Food Availability

VMap analysis estimates that about one percent of the grizzly bear action area is classified as dominated by whitebark pine. Most of these areas are located at higher elevations in the Stony Mountain IRA. None of the areas mapped as whitebark pine dominance are located within Gold Butterfly units. The Gold Butterfly Botany Specialist's Report indicates that populations of whitebark pine were found in at least 28 treatment units, and likely occur in several more. Size of these trees ranged from seedlings to mature, cone-producing individuals. Some mid-elevation units supported only scattered, small whitebark pine, while some higher elevation units supported good numbers of mature whitebark pine. Many whitebark pine in the project area show evidence of blister rust, but others appear to be relatively rust free. The condition of whitebark pine in more remote, upper elevations in the grizzly bear action area is not known, but most other stands in the BNF are moderately impacted by blister rust. Most whitebark pine throughout the area occur in relatively dense stands of other conifers, which makes them susceptible to high-intensity fire while limiting the open conditions needed for regeneration. Whitebark pine is not considered to be a significant food source in the action area.

Grizzly bear survival in the GYE has been questioned in light of widespread reductions in whitebark pine availability due to mountain pine beetle and blister rust epidemics as well as climate change. Subsequently the IGBST completed a synthesis of available research and found that the grizzly bears in the GYE have a diverse diet. They have also shown the ability to "successfully shift major food items in their diet as availability changes." When whitebark pine is not available grizzlies increase their use of animal matter and other foods. The study team also found that home range size did not increase with a change in whitebark pine availability. Overall conclusion reached was that "whitebark pine decline has had no profound negative effects on grizzly bears at the individual or population level" (Interagency Grizzly Bear Study Team 2013).

There have been similar findings in the NCDE. According to the Draft NCDE Grizzly Bear Conservation Strategy, before the outbreak of white pine blister rust caused widespread mortality of whitebark pines, grizzlies fed on whitebark pine seeds when and where available. However, "whitebark pine mortality rates from the early to mid-1990s indicate

that 42-58% of all trees surveyed within the NCDE were dead with 48-83% of trees surveyed showing signs of blister rust infection." Whitebark pine seeds basically were lost as a food source for bears. "Despite this loss, the grizzly bear population is larger in size than once thought and increasing, a testament to the habitat diversity and flexibility of grizzly bear diets in the NCDE" (Interagency Conservation Strategy Team 2013).

The project area ranges from relatively low elevation to fairly high elevation. The higher elevations receive a considerable amount of snow during most winters. There are no known avalanche chutes within the managed portion of the project area to provide abundant spring forage plants and cover for bears, but it is likely that some avalanche chutes exist coming off the higher ridges in the Stony Mountain IRA.

Spring foraging areas for bears within the action area are most likely to occur in numerous lower to mid-elevation, moderately steep south and west-facing meadows that support native grass and forb communities. These open areas support a flush of nutritious grasses and forbs in the spring, but quickly dry out due to the relatively dry climate in the area. Other spring foraging opportunities occur in the riparian corridors along small to moderate-sized streams crossing the west boundary of the action area.

Vegetation surveys indicated that huckleberries are a common understory shrub throughout the mid-elevation portions of the action area, and could provide a substantial food resource within the Gold Butterfly project area. Grouse whortleberries are also quite common in the action area at higher elevations than huckleberries, but are less valuable as a food resource to bears due to the relatively small size of both the plants and the berries. Other fruit-producing plants in the area include serviceberry, elderberry, raspberry, wild rose, several Ribes species, mountain ash and juniper. These fruit-producing species tend to occur as individual plants or in small groups, but together provide a substantial food source for bears in at least some years.

Elk winter range constitutes approximately 10,203 acres or 18.5% of the grizzly bear action area. However, many elk in this area winter on private lands several miles to the west of the action area. Some of these elk travel through the action area during their spring or fall migrations between winter range and summer range high in the Sapphires. As a result, moderate numbers of elk may be available as a potential food source for transitory bears in the action area mainly in the spring or fall. However, many of the elk in HD 261 have essentially become year-round residents on lower elevation private lands, and no longer migrate to summer ranges.

Grizzly Bear Use

There have been no known occurrences of grizzly bears in the Gold Butterfly action area for at least the past 50 years. It is possible that the grizzly bear that crossed the Sapphires from Rock Creek to Sunset Bench and back in 2002 may have gone through or near the northern edge of the action area, but its actual route is unknown. The only other known recent grizzly bear occurrence in the Sapphire Mountains was in 2012, when verified grizzly tracks were found on a road near the head of Sleeping Child Creek, about 19 miles south of the action area (J. Jonkel pers. comm.). Six baited camera traps were established in the Stony Mountain IRA portion of the project area in the summer of 2018. The cameras recorded several black bear individuals and family groups, but no grizzlies.

More distant recent sightings of grizzly bears have occurred near Georgetown Lake, Anaconda and Wisdom. The area between the John Long Mountains, Flint Creek range and the Pintler range has been modeled as a potential grizzly linkage zone between the Boulder/Garnet mountain range complex and the Anaconda-Pintler Wilderness (Peck et al. 2017).

Grizzly Bear/Human Interactions

There have been no known grizzly bear/human conflicts in the action area nor have there been any grizzly/human conflicts anywhere on the BNF in over 50 years. The roaded portion of the action area receives a moderate amount of human use for activities such as firewood gathering, hiking, horseback riding and mountain biking during the summer, and heavy use during hunting season. The unroaded portion of the area receives light use by hikers, mountain bikers, horseback riders and hunters.

There is currently only one private residence within the action area, which is on a private inholding just north of Willow Creek Road. A handful of residences are located just outside the action area boundary between Willow Creek and the Burnt Fork, but there are no residences near the action area boundary to the south of Willow Creek.

There is an abandoned vermiculite mine in the St. Clair Creek drainage near the southern boundary of the action area. This mine ceased production circa 1970-1980, and the site was restored in the 1990s. There are no longer any structures or ongoing activities associated with this mine.

Several BNF facilities are located within the project area. The Willow Mountain Lookout is a functioning BNF fire lookout located near the center of the project area on Willow Mountain. It is staffed during the fire season, but closed the rest of the year. The Gold Creek Campground is a small, seasonal campground located on the Burnt Fork Road at the junction of Gold Creek and the Burnt Fork near the northwest corner of the action area. It is used intermittently by small numbers of Forest visitors. Trailhead facilities for the Burnt Fork Trail, Gold Creek Trail, Willow Creek Trail and Palisade Mountain National Recreation Trail are limited to small parking areas without other facilities, but do attract small numbers of trail users.

Grazing Allotments

There are no active grazing allotments in the action area, although a small part of the northern portion of the action area is included in a cattle allotment that has been inactive for years. Trespass cattle do sometimes find their way into both the northwestern and southwestern corners of the action area from adjacent private lands. The Forest actively works with ranchers and law enforcement to minimize such trespass. The influence of grazing activities on grizzly bears in the action area are considered negligible, and livestock grazing will not be discussed further.

3.4 Direct and Indirect Effects Analysis

All activities in the proposed action would occur in suitable or potentially suitable grizzly bear habitat. Commercial timber harvest, non-commercial treatments, prescribed burning, road construction, and road decommissioning/storage treatments all have the potential to directly and indirectly impact the species due to noise and disturbance from the

implementation of the proposed activities, human presence and a change in the structure and age classes of vegetation in each treatment unit. However, in the 2013 BO for the adjacent BDNF Forest Plan (USDI Fish and Wildlife Service 2013), the USFWS stated, "We do not anticipate adverse effects as a result of vegetation management…except for the effects of the associated access management and food and attractant storage." Therefore, indirect effects due to habitat changes resulting from vegetative management treatments are expected to be insignificant.

3.4.1 Effects to Denning Habitat

About 9 acres of modeled denning habitat occurs within commercial harvest unit 65b (Appendix B, Figure 4). This modeled habitat is directly adjacent to FSR 364, the main road through the area which is open to motorized use year round. It is therefore not located in a secure area. The sanitation and commercial thin treatment proposed in this unit would open the canopy to some extent, but would not change the existing lack of security at this site.

Another 8 acres of modeled denning habitat is within non-commercial unit 105.This modeled habitat is directly below FSR 969, the main road through the area that is open to motorized use from June 15 to October 15 each year, and to 2 vehicles per day carrying disabled hunters during the rifle season. This area is not classified as security area. The non-commercial thinning proposed for this unit would increase sight distances and make animals more visible from the road, but would not change the existing lack of security at this site.

As a result of the existing lack of security at both these sites, it is highly unlikely that grizzly bears would use either area for denning. Therefore, it is extremely unlikely that grizzly bears would be impacted by this project during the denning period. No grizzly bears or grizzly bear dens have been reported within the action area. As a result, effects of project activities to denning grizzly bears would be discountable, as such effects are unlikely to occur.

3.4.2 Effects to OMRTD

Since almost all of the roads to be decommissioned or stored are already closed to public motorized use, and all of the roads to be constructed will be closed to motorized public use, the open road density would decline only slightly from the existing condition (see Section 1.2.2). The Gold Butterfly project area is outside of both the GYE and NCDE recovery zones. There have been no recent sightings of grizzly bears in the action area. It is unlikely that a grizzly bear would be in the action area during project implementation. Appendix B, Figure 5 shows that the project area includes a large security area formed by the Stony Mountain IRA, and is on the edge of some adjacent unroaded areas, so there would be sufficient secure areas to move into if a transient bear was in the area and was disturbed by project implementation activities.

During the adjacent BDNF's reconsultation with the USFWS on the BDNF Forest Plan in 2012, USFWS expected there could potentially be adverse effects from temporary roads to female grizzly bears on their home ranges, especially if the temporary road is constructed in key feeding and sheltering habitat. However, USFWS also stated that, "… in many cases, temporary roads have different effects on grizzly bears than those associated with permanent roads. Temporary roads are obliterated post-project and linear road densities

would return to the pre-project levels, lessening the effects on grizzly bears over time" (USDI Fish and Wildlife Service 2013). Temporary roads would only be constructed as needed, they would not be all open at the same time and the use of those roads would be relatively short term (one harvest season) before they are obliterated. Although possible, potential effects to grizzly bears from use on temporary roads are expected to be insignificant, as there have been no recent sightings of grizzly bears in the action area. It is unlikely that a grizzly bear would be in the action area during project implementation.

3.4.3 Effects to Secure Habitat

Implementation of the project would result in a very minor increase in the amount of security area for bears and other wildlife, due to the closure of 0.22 miles of FSR 969A in the Willow Creek bottom. Secure area percentage would increase a fraction beyond the current 71% during the summer. In the spring and fall, 77% of the action area would provide security areas. Connectivity for transitory bears that might move through the action area would be maintained. The project would also increase the amount of secure area in the bottom of the Burnt Fork beyond the Gold Creek Campground by implementing the closure of the Burnt Fork road to public motorized use. However, this closure was analyzed and approved in the Bitterroot Travel Plan FEIS in 2016, and is thus considered part of the environmental baseline. As a result, the analyses of open road density and grizzly bear secure area are based on the assumption that this road is already closed.

Under-use of habitat by grizzly bears in proximity to Forest roads does not necessarily preclude use or form a barrier to dispersal and movement across the landscape. Until numbers substantially increase, grizzly bears that may be present on the Forest and moving into the Forest in the near future, including the Gold Butterfly project area, would not likely face significant competition for habitat and resources from other grizzly bears. Thus, displacement from quality habitat is not likely to result in adverse effects to individuals, as they are likely to have options to move to other areas to find resources. In general, male grizzly bears have larger home ranges than females. Also, males and subadults are more mobile and do not have the same energetic needs as adult females. Transient bears (those moving through areas outside of home range use) are highly mobile and not restricted to finding food and shelter within a home range. Thus, while displacement from roads may affect behavioral patterns of males, subadults, and transients, such as feeding or sheltering, such affects are likely to be insignificant.

3.4.5 Effects to Cover

About 6,100 acres proposed for treatment are currently classified as Tree, >25% Canopy Cover, so are assumed to be providing hiding cover. Project activities would temporarily decrease hiding cover on these 6,100 acres, or 11% of the Gold Butterfly action area through a combination of timber harvest, non-commercial thinning and/or prescribed burning. About 5,017 acres would change from Tree, >25% Canopy Cover to Tree, <25% Canopy Cover. About 1,084 acres would change from Tree, >25% Canopy Cover to the Grass, Forb, Sparsely Vegetated category. Over 63% of the action area would still be classified as hiding cover. The project does not include any vegetation management treatments in RHCA buffers.

Hiding cover could take approximately 20 to 30 years to recover, depending on stand conditions. Opening the canopy through proposed treatments should result in patches of

conifer regeneration and shrubs, which would provide hiding cover over time when combined with retained tree boles and branches.

3.4.6 Effects to Food Availability

Timber harvest, non-commercial treatments and/or prescribed burning would reduce the conifer overstory and understory layers in 7,488 acres of treatment units. This would reduce shading and competition for soil moisture, and would likely result in increased growth of grasses, forbs and shrubs that provide forage for grizzly bears and grizzly bear prey animals over several years.

Reducing conifer competition to existing whitebark pines would benefit these trees by increasing moisture and nutrients available to them. It is expected that there would be some loss of undetected seedlings and saplings from project implementation activities. Design features will reduce impacts to these known populations during project implementation. However, as mentioned in the existing condition section, whitebark pine is not currently providing a large food source for grizzly bears in the action area.

Winter logging could occur in some units within elk winter range. Commercial thinning and prescribed burning on these generally south-facing slopes should improve winter range forage conditions for big game in the long term. The Forest expects there would be minimal disturbance effects to elk on winter range from project activities, because most elk in the drainage currently winter further to the west on private land. The project would have little if any impact to the number of elk or elk carcasses available to grizzly bears travelling through project area winter range in the spring.

3.4.7 Effects to Grizzly Bear Use

Future grizzly bear use of the action area is expected to be infrequent and unpredictable, since any bears using the area in at least the near future are expected to be transient animals. Direct and indirect effects from the Gold Butterfly project to transient grizzly bear use of the action area are expected to be unlikely (discountable).

3.4.8 Effects to Grizzly Bear/Human Interactions

Grizzly bears have been documented on the Forest and have been confirmed in areas fairly close to the action area, but have not been confirmed within the action area. It is possible that grizzly bears may be present and may travel through the action area as transients. Due to the very low number of confirmed bear occurrences surrounding the action area, the potential for disturbance from the Gold Butterfly Project is unlikely and discountable. However, if a grizzly bear were to occur in the immediate vicinity of the proposed activity, localized disturbance effects that would be temporary and insignificant may occur. Any such disturbance is not expected to reduce an individual grizzly bear's ability to move through the area. In addition, the vegetation treatments are not expected to result in significant habitat changes to grizzly bear habitat features such as cover, foraging, and/or denning habitat. All project activities associated with the proposed action would be subject to the project's food storage requirements, thus reducing the potential for human/grizzly bear conflicts. With such measures taken to minimize the potential for grizzly bear-human conflicts, the effects of these conflicts are expected to be discountable.

The increased presence of humans in the project area during implementation of the Gold Butterfly project would increase the risk of disturbance, displacement or morality to

transient grizzly bears. This risk is discountable because the only known record of a grizzly bear in or near the action area in the last 50 years was an apparently transient individual in 2002. It is unlikely that a transient grizzly bear would pass through the area during project implementation.

Human presence would increase in treatment units during project implementation. The potential for grizzly bears to access unnatural foods would be minimized by a design feature in the FEIS that would require the inclusion of a food storage order as a contract clause (Appendix C). Another design feature in the FEIS would require a contract clause that would prohibit contractors from hunting, transporting hunters, discharging firearms or transporting big game animals with vehicles within areas otherwise closed to motorized vehicles (Appendix C). These contract clauses would reduce the risk of grizzly bear mortality resulting from human interactions during project implementation.

Treatments near streams have the potential to displace grizzly bears from riparian areas as heavy equipment would be utilized. No mechanical treatments would occur within Riparian Habitat Conservation Areas (RHCAs), but could occur adjacent to RHCAs. As a result, this type of disturbance is expected to be limited in scale and short term in duration, reducing the chances of disturbance to transient bears potentially traveling through the area and utilizing riparian areas.

Project implementation activities have the potential to disturb and displace transient bears that may be in the vicinity of ongoing operations, but the project area is adjacent to a large secure area formed by the Stony Mountain IRA, adjacent roadless portions of the Rock Creek drainage, and the Sapphire Wilderness Study Area not far to the south of the project area. There would be abundant nearby secure areas to move into in the unlikely event that a transient bear was in the area and was displaced by project implementation activities. If a grizzly bear were to be present within the action area during implementation, any disturbance effects are expected to be insignificant.

3.5 Cumulative Effects

There are no State lands within the grizzly bear action area, although the Calf Creek Wildlife Management Area is adjacent to the southwest boundary of the action area. Private lands constitute less than 1% of the action area. Home and yard maintenance activities and construction on these private lands will likely continue.

The effects to grizzly bear and grizzly bear habitat from these types of actions on private lands include potential disturbance or displacement due to human presence, motorized use and other mechanized equipment, presence of livestock or garbage (unnatural food sources), and minor changes in forested condition classes. High levels of human activity usually have a negative effect on the grizzly bear population because the greatest cause of grizzly bear mortality in the NCDE is from conflicts with humans. All of these activities had or have the potential to impact grizzly bears and/or grizzly bear habitat in the action area. The presence of these activities may lead grizzly bears to avoid otherwise suitable habitat. This is unlikely however, as no grizzly bears have been sighted in the action area to date and the action area is approximately 50 miles away from the NCDE recovery zone and 125 miles away from the GYE recovery zone.

3.6 Determination of Effects and Rationale

I have determined the implementation of the proposed Federal action MAY AFFECT - IS NOT LIKELY TO ADVERSELY AFFECT grizzly bears. My determination is based on the following rationale:

1. Open road density standards as measured by the Elk Habitat Effectiveness (EHE) methodology meet applicable EHE standards in 22 of the 28 third order drainages in the action area. Linear open route densities averaged across the action area are low (0.83 miles/mile^2 [0.51 km/km^2] during the summer; 0.67 miles/mile^2 [0.42 km/km^2] during the fall hunting season). Most of the open routes are concentrated in the western third of the action area, while most of the rest of the action area is unroaded because it is within the 44,080 acre Stony Mountain Inventoried Roadless Area. The low open route density and preponderance of unroaded areas within the action area reduce the negative impacts of motorized routes to grizzly bears. Therefore, the effects of such impacts would be insignificant;
2. There have been no grizzly bear sightings in the action area in over 50 years and the project is 50 miles from the nearest point of the NCDE recovery zone and 125 miles from the nearest point of the GYE recovery zone. If disturbance of presumably transient, male bears did occur it would be temporary and insignificant, because disturbed bears could disperse into the Stony Mountain Inventoried Roadless Area, several adjacent unroaded areas or the Sapphire Wilderness Study Area to the south. Therefore, potential effects of disturbance and displacement of individual transient bears would be unlikely (discountable);
3. Anticipated direct, indirect and cumulative effects would be negligible for reasons stated on pages 14-19;
4. A food storage order and a prohibition on contractors hunting, transporting hunters, discharging firearms or transporting big game in areas closed to public motorized access are included as design features in the Gold Butterfly EIS, and will be included as contract requirements for contactors implementing the Gold Butterfly project (Appendix C). These design features will reduce the risk of possible human/bear interactions and bear mortalities. Therefore, the effects of such conflicts would be discountable;
5. The project is assumed to reduce grizzly bear hiding cover within all 7,488 acres of proposed treatment units, or 13.6% of the action area. This reduction in hiding cover is temporary, and increased growth of shrubs and conifer regeneration resulting from overstory canopy reduction is expected to restore hiding cover in these treatment areas within 20 to 30 years. Since over 65% of the action area would still be classified as hiding cover, the effects of this temporary reduction in hiding cover would be insignificant;
6. The project would have negligible effects to typical grizzly bear food sources such as big game animals or big game carrion on winter ranges, whitebark pine cones or riparian areas, and no effect to avalanche chutes. The project could result in a temporary reduction in the availability of grasses, forbs and shrubs within treatment units. Grasses, forbs and shrubs would likely respond positively to the reduction in

overstory conifer canopy within several years, and could increase the production of grizzly bear forage plants within units. Overall, effects to grizzly bear forage would be insignificant;

7. The project would have minor effects to grizzly bear denning habitat because two areas totaling 17 acres of modeled denning habitat are within treatment units. These areas are unlikely to be used by denning grizzly bears as both are adjacent to main roads that are open to motorized traffic much or all of the year. No grizzly bears or grizzly bear dens have been reported within the action area. As a result, effects of project activities to denning habitat would be negligible, and effects to denning grizzly bears would be unlikely (discountable).

4.0 Species Assessment - Canada Lynx (*Lynx Canadensis*)

4.1 Current Status on the Bitterroot National Forest

The USFWS listed Canada lynx as Threatened throughout the contiguous Unites States in 2000 (USDI Fish and Wildlife Service 2000b). In 2007, the Forest Service and other agencies completed the Northern Rockies Lynx Management Direction (NRLMD) Final Environmental Impact Statement (FEIS) (USDA Forest Service 2007a). The NRLMD Record of Decision (USDA Forest Service 2007b) amended the forest plans of 18 National Forests within the Rocky Mountain, Intermountain and Northern Regions of the Forest Service, including the Bitterroot National Forest (BNF), to add specific objectives, standards, and guidelines described in the NRLMD for management of lynx habitat.

The NRLMD incorporated conservation measures from the Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et.al. 2000) into the amended forest plans. It utilized classifications of National Forest System lands as "occupied" or "unoccupied" by lynx, based on the Amended Lynx Conservation Agreement between the Forest Service and USFWS (USDA Forest Service and USDI Fish and Wildlife Service 2006). These definitions are as follows:

- Mapped lynx habitat is considered occupied by lynx when:
    - There are at least 2 verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
    - There is evidence of lynx reproduction on the National Forest
- Areas of lynx habitat not meeting the definition of "occupied" are considered unoccupied.

The Lynx Recovery Outline (USDI Fish and Wildlife Service 2005) further classified National Forest System lands with respect to their status as core, secondary or peripheral lynx habitat. Definitions of these classifications are provided below:

Chapter 1 Core areas have both persistent verified records of lynx occurrence over time and recent evidence of reproduction.

Chapter 2 Areas classified as secondary areas are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys to document the presence of lynx and/or reproduction. If future surveys document presence and reproduction in a secondary area, the area could be considered for elevation to core. Secondary areas may contribute to lynx persistence by providing habitat to support lynx during dispersal movements or other periods, allowing animals to then return to "core areas."

In peripheral areas the majority of historical lynx records is sporadic and generally corresponds to periods following cyclic lynx population highs in Canada. They contain no evidence of long-term presence or reproduction that might indicate colonization or sustained use of these areas by lynx. However, some peripheral areas may provide habitat enabling the successful dispersal of lynx between populations or subpopulations.

The Bitterroot National Forest is classified as both secondary and unoccupied lynx habitat in the NRLMD (USDA Forest Service 2007a). The last verified records of lynx in Ravalli County include two animals documented by FWP trapping records in the winter of 1986-87. There are no known records documenting lynx reproduction in Ravalli County.

The NRLMD ROD (USDA Forest Service 2007b) states that "the management direction only applies to occupied lynx habitat." The NRLMD ROD further states that in areas of unoccupied, mapped lynx habitat, the National Forest "should consider the management direction that is now incorporated into their Forest Plans when developing projects, but are not required to follow the management direction until such time as they are occupied by Canada lynx" (USDA Forest Service 2007b). However, in 2009 Regional Forester Tom Tidwell issued a memo (USDA Forest Service 2009) that directed forests currently considered unoccupied, including the BNF, to "consider the management direction found in Attachment 1" of the 2007 NRLMD ROD.

The revised *Canada Lynx Conservation Assessment and Strategy* (Interagency Lynx Biology Team 2013) indicated that "the discussion of geographic areas and the development of conservation measures were informed by the Remanded Rule, the Recovery Outline, and the revised final critical habitat rule", as well as other information that has become available since 2000. Of particular note for this project is that the revised LCAS stratifies the objectives and conservation measures by core areas and secondary/peripheral areas to help managers prioritize their conservation efforts. The conservation strategy in the revised LCAS states it is "not necessary to delineate LAUs in secondary/peripheral areas." The strategy indicates that secondary or peripheral areas might contribute to lynx persistence by supporting successful dispersal or exploratory movements, and habitat in these areas appears to be inherently patchier and less productive. They further speculate that "the amount and quality of habitat required to support an independent adult or subadult disperser is less than is necessary to support reproduction and sustain a local population" (*Ibid*). The conservation strategy indicates that the focus of management in secondary areas is on "providing a mosaic of forest structure to support snowshoe hare prey resources for individual lynx that infrequently may move through or reside temporarily in the area" and that landscape connectivity should be maintained to allow for movement and dispersal (*Ibid*).

Canada lynx first appeared on the USFWS list of Threatened, Endangered and Candidate Species that may be present on the BNF on July 2, 2013 as "transient – secondary/peripheral habitat". This addition of lynx to the USFWS list of Threatened, Endangered and Candidate species that may be present on the BNF did not change the BNF's classification as unoccupied lynx habitat under the amended Canada Lynx Conservation Agreement (USDA Forest Service and USDI Fish and Wildlife Service 2006). The status of lynx is unchanged on the most recent version of the USFWS list dated July 16, 2018. The BNF does not contain any designated Critical Habitat for lynx (USDI Fish and Wildlife Service 2014).

McKelvey et al. (2000) reconstructed the history and distribution of lynx in the contiguous United States from the 1800s to present. They reported on lynx occurrence, relationships of lynx population dynamics in adjacent areas, and the vegetation cover types associated with lynx observations. In particular, they found a strong correlation between lynx trapping data from Montana with a two-year lag in trapping data from Alberta and British Columbia

(Ibid). Lynx harvest data from Montana is cyclical in nature, with peaks corresponding closely in magnitude and about two years later than those occurring in western Canada, notably for peaks in 1963, 1971 and 1981.This data suggests that lynx populations in Montana are responding to the same factors controlling lynx populations in Canada, and to immigration from population increases in Canada (Ibid).

The Montana Natural Heritage Program maintains a database of species observations (Montana Natural Heritage Tracker). The project area lies within the northern Sapphire Mountains. A query of the database showed that there are two lynx trapping records in the proximity of the project area. One was from the township that includes the Gold Creek drainage in the winter of 1986-87, and the other was from the township that includes Burnt Fork Lake and the Skalkaho Basin area in the winter of 1977-78. Trapping records are only identified to township, so it is not clear exactly where these animals were trapped. The Montana Natural Heritage Database does not contain any additional verified or anecdotal records of lynx within the Gold Butterfly lynx action area.

At a broader scale, the Montana Natural Heritage Program database contains another 12 trapping records of lynx from both sides of the Sapphire Mountains between 1978 and 1987, and another 9 anecdotal (unverified) observations of lynx from the Sapphire Mountains between 1982 and 1996. None of these records are within or in the proximity of the Gold Butterfly lynx action area. Most of these lynx records in the Sapphires correspond to an increase in the number of lynx trapped in Montana in the early to mid-1980s, which lagged behind an increase noted in Canada in 1978 to 1982 (McKelvey et al. 2000). It is likely that all these detections involved transient lynx.

The BNF conducted winter carnivore track surveys on FSR 969, 1302 and 1348 within the project area during many winters in the late 1980s and 1990s. No lynx tracks were detected. More recently, Forest wildlife crews and volunteers organized and trained by the Defenders of Wildlife established multi-carnivore bait stations designed to detect fisher, marten, wolverine and lynx at 40 to 50 locations distributed across the Forest every winter since 2013-2014, including up to seven sites within the project area. No lynx have been detected at any of these stations, although numerous bobcats, martens and wolverines were confirmed by photos and/or DNA analysis.

The Forest used the National Lynx Protocol hair snare methodology to survey for the presence of lynx in portions of the East Fork Bitterroot River drainage in 1999, 2001, 2002-3 and again in 2010. No lynx were detected, despite the fact that this area was identified as a likely linkage area for lynx movements in the NRLMD ROD (USDA FS 2007b). (See Appendix D, Figure 2). These linkage areas are estimates and are not substantiated by empirical data on lynx movements.

In addition to the information from the Montana Natural Heritage Tracker and FWP trapping records, several collared lynx captured in Canada and transplanted to Colorado were radio-located in Montana (Devineaux et al. 2010). Eight of Colorado's 218 reintroduced lynx made 10 forays into Montana, lasting from 1 to 217 days (Ivan 2011). Two of the individuals traveled through portions of the BNF. In 2005 one individual spent 91 days in Montana, including traveling through the Pryor, Absaroka, Gallatin, Madison and Tobacco Root ranges, past Anaconda and presumably over the Sapphires before being found dead along Hwy. 93 near Stevensville. In 2007, one individual spent 98 days in

Montana, travelling west out of Yellowstone into the Gravelly Range, then northwest through the Tobacco Root, Flint Creek and northern Sapphire ranges before passing Lolo and heading into Idaho (Ibid). Either of these individuals may have crossed the Sapphires in the vicinity of the project area, but their exact routes over the Sapphires are unclear because GPS locations were only uploaded to the satellite once per week (Devineau et al. 2010). These individuals are considered transients.

4.2 Life History

The life history and habitat associations of Canada lynx have been documented in many previous publications and will not be repeated here. See USDI Fish and Wildlife Service (2014) and Interagency Lynx Biology Team (2013) for recent summaries.

4.3 Environmental Baseline

4.3.1 Spatial and Temporal Bounds

In 2000, the LCAS recommended that LAUs be identified for all areas with lynx habitat "to provide analysis units of the appropriate scale with which to begin the analysis of potential direct and indirect effects of projects or activities on individual lynx, and to monitor habitat changes" (Ruediger et. al. 2000). The Gold Butterfly project area includes portions of two adjacent LAUs, the Burnt Fork LAU and the Willow-Skalkaho LAU. The lynx action area for this project includes the entire area within these two LAUs, which totals approximately 83,518 acres (Appendix D, Figure 1). This action area is large enough to evaluate the ability of the habitat to support lynx, but small enough to not obscure the effects of the proposed action. The proposed project would treat portions of the mapped, secondary lynx habitat in both LAUs. All of the proposed actions are contained within this action area. The vast majority of both LAUs is National Forest System lands, with minor amounts of state and private lands. Only National Forest System lands are included in the analysis of direct and indirect effects, whereas all land ownerships within the action area are included in the analysis of cumulative effects.

The temporal bounds for the effects analysis is ten to fifteen years in which the project will be implemented and all activities, including rehabilitation, will be completed. Longer-term effects to species habitat lasting beyond fifteen years and up to fifty years are discussed in the context of vegetation succession and the effect on habitat changes but not in terms of potential disturbance.

4.3.2 Canada Lynx Specific Direction

Bitterroot Forest Plan Canada Lynx Direction

The Bitterroot National Forest Plan (USDA Forest Service 1987) did not contain any direction specific to Canada lynx. However, the Northern Rockies Lynx Management Direction (NRLMD) was amended into the Forest Plan in 2007 by the NRLMD ROD (USDA Forest Service 2007b). Objectives, standards and guidelines contained in the NRLMD now provide Canada lynx direction in the Forest Plan. Applicable standards and guidelines from the NRLMD are listed below.

NRLMD Standard ALL S1 states that, "New or expanded permanent developments and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area."

NRLMD Standard VEG S1 states "Unless a broadscale assessment has been completed, if more than 30% of the lynx habitat is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat (i.e. Early Stand Initiation or ESI), no additional habitat may be regenerated by vegetation projects."

NRLMD Standard VEG S2 states "timber management projects shall not regenerate more than 15% of lynx habitat on NFS lands in a lynx analysis unit in a 10-year period."

NRLMD Standard VEG S5 states that "Precommercial thinning projects that reduce snowshoe hare habitat, may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat" only under certain exceptions (i.e. fuel treatment projects in the Wildland Urban Interface [WUI]) or exemptions.

NRLMD Standard VEG S6 specifies that vegetation management projects that reduce snowshoe hare habitat may occur in the mature multi-storied (MMS) structural stage only under certain exceptions (i.e. fuel treatment projects in the WUI) or exemptions.

Guideline VEG G5 states that, "Habitat for alternate prey species, primarily red squirrels, should be provided in each LAU."

Guideline VEG G11 states that, "Denning habitat should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles)".

Guideline HU G9 states that "…new roads built for projects, public motorized use should be restricted…When the project is over, these roads should be reclaimed or decommissioned…"

4.3.3 Habitat

Lynx habitat on the Bitterroot National Forest was recently mapped through a GIS process based on a procedure developed by the Lolo National Forest and Regional Office wildlife and GIS staffs. The process used the best available data to identify areas of the cooler, moister habitat types that currently or in the future will support the true fir/spruce habitat types that lynx select. This is the BNF's mapped lynx habitat. The process then used VMap data in combination with stand exam and activity databases and field verification to determine existing structural stages for this mapped lynx habitat. The model results were then used to determine compliance with the NRLMD standards and guidelines (USDA Forest Service 2007b). Mapped lynx habitat is widespread at mid to upper elevations in the Gold Butterfly project area, but is generally confined to cooler aspects at lower elevations. See Appendix D, Figure 2 for the LAUs with modeled lynx habitat for the action area.

Approximately 53% (44,121 acres) of the action area is classified as mapped lynx habitat. Table 5 displays acres and percentages of mapped lynx habitat by structural stage within the two LAUs that form the Gold Butterfly lynx action area.

Table 5. Projected change in percentage of mapped lynx habitat in the Burnt Fork and Willow-Skalkaho LAUs following treatment

	Burnt Fork LAU Lynx Habitat Acres & (%) By Categories				
	ESI	**SI**	**SE**	**MMS**	**Other**
Existing	6304 (25.6%)	588 (2.4%)	7486 (30.4%)	5920 (24.7%)	4334 (17.6%)
Post-Treatment	6464 (26.2%)	363 (1.5%)	7101 (28.8%)	5598 (22.7%)	5105 (20.7%)
Total Lynx Habitat in LAU = 24,632 Acres Not Lynx Habitat in LAU = 19,904 Acres Total Area in LAU = 44,536 Acres					
	Willow-Skalkaho LAU Lynx Habitat Acres & (%) By Categories				
	ESI	**SI**	**SE**	**MMS**	**Other**
Existing	3985 (20.4%)	94 (0.5%)	3440 (17.7%)	9519 (48.8%)	2541 (13.0%)
Post-Treatment	4689 (24.1%)	65 (0.3%)	3081 (15.8%)	8888 (45.6%)	2765 (14.2%)
Total Lynx Habitat in LAU = 19,489 Acres Not Lynx Habitat in LAU = 19,493 Acres Total Area in LAU = 38,982 Acres					

ESI=early stand initiation structural stage
SI-stand initiation structural stage
SE=stem exclusion structural stage
MMS=mature multi-storied structural stage
Other=other structural stages

4.3.4 Canada Lynx Use

The last known detection of Canada lynx in the lynx action area was a trapping record from the winter of 1986-87. No confirmed detections of Canada lynx in the action area have occurred in over 30 years despite numerous inventory efforts described in Section 4.1.

4.4 Direct and Indirect Effects Analysis

This proposal would result in changes to stand structure and species composition through commercial timber harvest, non-commercial thinning and/or prescribed burning (Appendix D, Figure 3). Additional effects include disturbance due to increased traffic, human activity, and equipment use during project implementation.

Stands dominated by subalpine fir and spruce contain the most suitable vegetative structure and composition to provide habitat for lynx. The Gold Butterfly proposal focuses on restoration of drier ponderosa pine and Douglas-fir stands that do not provide lynx habitat, but also includes treatments in more mesic stands that do provide suitable habitat for lynx.

Commercial, non-commercial and prescribed fire treatments in units that are not classified as mapped lynx habitat would not affect the amount of lynx habitat in the action area. These units would retain varying amounts of overstory and understory conifers depending on prescription, and would also retain course woody debris (CWD) and snags if available to meet CWD and snag retention guidelines. These habitat components would provide sufficient prey and cover that these units would not be barriers to the movements of transient lynx.

Proposed units within mapped lynx habitat are located both within and outside the Wildland/Urban Interface (WUI). Units outside of the WUI are designed to meet applicable NRLMD standards and guidelines. Units within the WUI are exempted from NRLMD standards and guidelines, but would retain sufficient habitat components that these units would not be barriers to the movement of transient lynx. Implementation of some of these units would reduce the amount of lynx habitat in suitable condition in the short term.

Direction on occupied and unoccupied lynx habitat was provided in a letter from the Regional Forester in 2009 (USDA Forest Service 2009). This letter directs unoccupied forests to consider lynx management direction using the "*Northern Rockies Lynx Management Direction Standards and Guidelines Consistency Evaluation Table for Project Specific Activities*". This has been completed and is found in its entirety in Appendix E. Following are the project specific applicable standards and guidelines (Standard ALL S1, Standard VEG S1, Standard VEG S2, Standard VEG S5, Standard VEG S6, Guideline VEG G5, Guideline VEG G11, and Guideline HU G9).

The project meets NRLMD Standard ALL S1. Habitat connectivity would be maintained within the LAUs and across the action area. Many units would retain forested cover within the unit, while some of the regeneration units would have forested cover around their perimeter. Snags and CWD would be retained to meet Forest Plan direction; and understory vegetation would increase with increased sunlight.

Both LAUs would continue to meet NRLMD Standard VEG S1 following implementation of the project. Table 7 shows the LAUs, amount of lynx habitat and percentage of lynx habitat that is currently classified as ESI structural stage based on VMap analysis and the FACTS activity database, and the amount and percentage after implementation of the project. Most of the acres within the action area that are currently in the ESI structural stage are the result of wildfires in the past 20 years. Table 7 shows that both LAUs in the Gold Butterfly lynx action area are currently below the 30% limit for ESI structural stage. Implementation of the project would create additional ESI structural stage in some units, but both LAUs would continue to be below the 30% limit. The amount of mapped lynx habitat in the ESI stage in the LAUs partly within the project area would increase about 2.6%. This could reduce the amount of snowshoe hare habitat and therefore reduce the number of hares available to transient lynx. Effects of this reduction in potential prey would last for about 30 years, and would be insignificant to transient lynx.

Table 7: Projected changes in abundance of ESI structural stage following treatment

LAU Name	Total Acres	Acres Lynx Habitat	Abundance of ESI (acres and percent)	Abundance of ESI following treatment (acres and percent)
Burnt Fork	44,536	24,632	6,304 (25.6%)	6,464 (26.2%)
Willow-Skalkaho	38,982	19,489	3,985 (20.4%)	4,689 (24.1%)

Both LAUs would meet NRLMD Standard VEG S2 following implementation of the project. The FACTS activity database shows that there was one 86.6 acre clearcut on the southern edge of the Willow-Skalkaho LAU in 2008, and no regeneration harvest units within the Burnt Fork LAU in the past 10 years. Table 8 shows that the project would regenerate some mapped lynx habitat, but the resulting percentages are well below the 15% limit. This would reduce snowshoe hare habitat as described previously under VEG S1, and would be insignificant to transient lynx.

Table 8: Lynx Analysis Units Acres and Percentage of Mapped Lynx Habitat Regenerated Through Project Implementation

LAU Name	Acres Lynx Habitat	Acres Lynx Habitat Regenerated Past 10 Years	Acres Lynx Habitat Regenerated by Project	% Lynx Habitat Regenerated in 10 Years
Burnt Fork	24,725	0	110	0.4%
Willow-Skalkaho	20,266	86.6	798	4.4%

The project would meet NRLMD Standard VEG S5 due to exemptions and exceptions incorporated into the standard. Exemption 6 is: To restore whitebark pine (USDA Forest Service 2007a). Proposed treatments would convert about 136 acres of lynx habitat in the SI structural stage outside of the WUI to the Other structural stage. These acres of SI structural stage are in the portions of non-commercial units 86, 119, 120, 166, 167, 183 and 185 classified as mapped lynx habitat. The purpose of all these units is to restore whitebark pine by using non-commercial thinning to daylight existing whitebark pine in old cutting units. Therefore, the NRLMD allows this pre-commercial thinning under VEG S5 Exemption 6. Thinning would reduce canopy cover, but would increase hare habitat over time as understory forbs, shrubs and conifers fill in the openings. Daylighting would affect about 0.3% of the mapped lynx habitat in the action area. The effects of these scattered small openings would be insignificant to transient lynx.

The project also proposes non-commercial thinning of 103 acres of the SI structural stage in mapped lynx habitat within the WUI. These treatments are allowed under the exception to VEG S5 for fuel treatment projects within the WUI. Therefore, the project meets NRLMD standard VEG S5 under the exception for fuels treatment projects within the WUI, and Exemption 6 for whitebark pine restoration outside of the WUI. Thinning would reduce habitat for hares in about 0.2% of the mapped lynx habitat in the action area. The effects of thinning these stands would be insignificant to transient lynx.

The project would meet NRLMD Standard VEG S6 due to exemptions and exceptions incorporated into the standard. None of those exemptions applies to proposed units. Proposed treatments in mapped lynx habitat outside the WUI are generally in the Stem Exclusion or Other structural stages that provide little habitat for snowshoe hares. Treating these acres would comply with NRLMD standards and guidelines because they are not MMS stands and/or they do not currently provide snowshoe hare habitat. Treating these stands would increase the amount of snowshoe hare habitat over time as forbs, shrubs and young conifers respond to the increase in sunlight to the forest floor. The effects of treating these stands would benefit transient lynx by increasing the snowshoe hare prey base in the area.

The project also proposes commercial harvest on 940 acres and non-commercial thinning on 25 acres in mapped lynx habitat in the MMS structural stage within the WUI. These treatments would convert about 886 acres of MMS lynx habitat to the ESI or Other structural stages. These treatments are allowed under the exception to VEG S6 for fuel treatment projects within the WUI. Therefore, the project meets NRLMD standard VEG S6 under the exception for fuels treatment projects within the WUI. These treatments would reduce overhead cover and snowshoe hare habitat in the short term on about 2% of mapped lynx habitat in the action area. Snowshoe hare habitat would redevelop over the next 30 years. The effects of treating these stands would be insignificant to transient lynx.

Table 12: Lynx Habitat in the Mature Multi-storied (MMS) Structural Stage in the Lynx Action Area

	MMS Acres and (%) Existing Condition	**MMS Acres and (%) After Project**
Inside WUI	7,945 ac. (49.4%)	7,059 ac. (43.9%)
Outside WUI	7,516 ac. (26.7%)	7,516 ac. (26.7%)
Total	15,462 ac. (35.0%)	14,576 ac. (33.0%)

The project meets Guideline VEG G5. Habitat for red squirrels is being affected by mountain pine beetle mortality. Mixed conifer stands will be less affected and will continue to provide habitat. The project would leave large areas of mature conifer habitat that would continue to support squirrels.

The project meets Guideline VEG G11, which suggests leaving course woody debris for lynx denning habitat. Stands that qualify as MMS lynx habitat are well-distributed across the action area, currently constituting about 35% of mapped lynx habitat. Following implementation of the project, MMS lynx habitat will constitute about 33% of mapped lynx

habitat. In addition, about 23% of the mapped lynx habitat in the action area consists of young stands of regenerating lodgepole pine resulting from several fires in the 1990s and early 2000s. These stands were not salvaged, and huge numbers of the large snags created by the fires have started to fall, creating abundant pockets of jackstrawed CWD. Remaining stands of MMS plus these regenerating stands resulting from fires will continue to provide adequate pockets of CWD for denning habitat.

Guideline HU G9 states that "…new roads built for projects, public motorized use should be restricted…When the project is over, these roads should be reclaimed or decommissioned…" All temporary roads and trails created for this project will be closed to public use during project implementation and then obliterated when harvest and hauling activities have been completed. All permanent roads created for this project will also be closed to public motorized use. The proposed action meets this guideline.

Appendix E to this BA identifies the applicable NRLMD management direction and considers the Gold Butterfly Project's FEIS finding that the project meets the standards and guidelines for LAUs, which goes beyond the conservation strategies set forth for secondary habitat in the revised LCAS (Interagency Lynx Biology Team 2013).

4.5 Cumulative Effects

Cumulative effects are the effects of past, present and future state, tribal, local or private actions that have occurred, are occurring, or are reasonably certain to occur in the action area. See Table 8 for an overview of the distribution of land ownership in the planning area.

Table 8: Ownership within LAUs

LAU Name	BNF acres and (% of LAU)	State acres and (% of LAU)	Private acres and (% LAU)
Burnt Fork	42,233 (95%)	404 (1%)	1,899 (4%)
Willow-Skalkaho	34,353 (88%)	646 (2%)	3,984 (10%)
Total Action Area	76,586 (92%)	1,050 (1%)	5883 (7%)

Table 8 shows that lands in State and private ownership within the action area are limited. Most State and private lands are at low elevations and are generally not classified as lynx habitat. Past activities on private lands include home construction, home and yard maintenance and some timber harvest. Past activities on State lands include road construction and timber harvest. There are no reasonably foreseeable timber harvest projects on State or private lands. Home and yard maintenance activities and construction on private lands will likely continue.

The effects to lynx and lynx habitat from these types of actions on State and private lands include potential disturbance or displacement due to human presence, motorized use and other mechanized equipment, and minor changes in forested condition classes. All of these activities had or have the potential to impact lynx or lynx habitat on State or private lands in the action area. This is unlikely however, because there is only a limited amount of

mapped lynx habitat on State or private lands, and no lynx have been sighted in the action area for over 35 years.

4.6 Determination of Effects and Rationale

I have determined that implementation of the proposed Federal action MAY AFFECT - IS NOT LIKELY TO ADVERSELY AFFECT Canada lynx. My determination is based on the following rationale:

1. The project occurs in secondary, unoccupied lynx habitat. There have been no lynx sightings in the action area in over 35 years, and the project area is 30 miles south of the southern edge of the nearest designated Critical Habitat (core habitat). Transient lynx are not expected to occur in the action area during or after project implementation. Therefore, direct and indirect project effects to lynx are unlikely (discountable);
2. If disturbance of presumably transient lynx did occur it would be temporary and insignificant, because disturbed lynx could disperse into the Stony Mountain Inventoried Roadless Area, several adjacent unroaded areas or the Sapphire Wilderness Study Area to the south. Therefore, potential effects of disturbance and displacement of individual lynx would be insignificant;
3. The project maintains connectivity of lynx habitat. Transient lynx would still be able to traverse the action area. Therefore, effects to movements of transient lynx would be insignificant;
4. The standards and guidelines of the NRLMD are met within the LAUs that contain the project (Appendix E). Transient lynx would find adequate prey and habitat resources to sustain them as they moved through the area. Therefore, effects of the project to transient lynx would be insignificant.

It is important to remember the focus of secondary areas in the Revised Lynx Conservation Strategy (Interagency Lynx Biology Team 2013). It is "providing a mosaic of forest structure to support snowshoe hare prey resources for individual lynx that infrequently may move through or reside temporarily in the area" and that landscape connectivity should be maintained to allow for movement and dispersal. This proposal would provide a mosaic of forest structure to support snowshoe hares now and in the future, and would maintain landscape connectivity.

In sum, effects of the project to transient lynx would be insignificant. This determination is a conservative estimate of the project's potential to affect Threatened Canada lynx as there have been no lynx sightings in the action area for over 35 years, and the effects as shown above are discountable.

There will be NO EFFECTS to lynx critical habitat because no critical habitat is designated within the action area or the BNF (USDI Fish and Wildlife Service 2014).

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Appendix A – Gold Butterfly Vegetative Treatment Descriptions

Clearcut with Reserve Trees

Regenerate stand by removing most of the overstory, but retaining some reserve trees for snags or forest structure in 25 units or sub-units ranging from 2 acres to 127 acres for a total of 761 acres.

- Proposed in units that need to be reset purely based on stand health and composition
- Mainly in Douglas-fir units with Douglas-fir regeneration that have 90% or greater mistletoe infection, or the restoration of whitebark pine treatments.
- Manages for a single-aged stand, with a minor amount of residual overstory left for purposes other than regeneration (i.e. future snags).
- Units would be treated with prescribed burning following harvest. Some or all slash would be left in the units to facilitate prescribed burning.
- Artificial or natural regeneration would be initiated in these units based on elevation and species selection.

Seed Tree Cut

Regenerate stand by removing most of the overstory, but retaining some trees to produce seeds for natural regeneration in 10 units or sub-units ranging from 11 acres to 70 acres for a total of 271 acres.

- Proposed in units that are mixed ponderosa pine and Douglas-fir, and some units with whitebark pine.
- Manages for a two-aged stand, with about 10% of full stand stocking retained as healthy, seed-producing trees to provide a seed source for the establishment of a new age class, as well as future snags or structure.
- Units would be treated with prescribed burning following harvest. Slash would be left in the units to facilitate prescribed burning.
- Artificial or natural regeneration would be initiated in these units based on elevation and species selection.

Shelterwood Cut

Regenerate stand by removing much of the overstory, but retaining more residual trees than in other regeneration methods in 17 units or sub-units ranging from 3 acres to 262 acres, for a total of 810 acres.

- Proposed in units that are pure Douglas-fir stands, as well as stands containing mixed Douglas-fir, lodgepole pine and subalpine fir.

- Manages for a two-aged stand, with more than 10% of full stand stocking retained as reserve trees to provide seed, shade, future snags and structure. Will result in variable residual tree density depending on current conditions.
- Units would be treated with prescribed burning following harvest. Slash would be yarded out of the units to reduce fire impacts to retained understory and reserve trees.
- Artificial or natural regeneration would be initiated in these units based on elevation and species selection.

Group Selection

Regenerate stand over time by removing most of the overstory in small groups, with minimal or no treatment between groups, in 4 units or sub-units ranging from 48 to 120 acres for a total of 296 acres.

- Proposed in units that are mostly even-aged, mature Douglas-fir or mixed Douglas-fir/lodgepole pine stands where various sized groups are desired to increase age-class and structural diversity.
- Groups would encompass at least 20% and not more than 50% of the unit during each entry. Group size would generally range from 2 to 20 acres.
- Edges of groups would be "feathered" to visually soften edges. Some reserve trees could be left in units to provide future snags.
- Units would be treated with prescribed burning following harvest. Slash would be yarded out of the units during harvest to reduce fuel loading.
- Artificial or natural regeneration would be initiated in these units based on elevation and species selection.

Commercial Thin

Reduce tree density to improve growth in older plantations where trees have reached commercial size in 26 units or sub-units ranging from 3 to 90 acres for a total of 765 acres.

- Variable spacing of leave trees is used to reduce stocking density and redistribute growing space to the best trees in the unit. Units would remain fully-stocked.
- Units would not be treated with prescribed fire following harvest. Slash would be whole-tree yarded during harvest to reduce fuel loadings.

Sanitation and Commercial Thin

Remove diseased overstory trees to improve the health of the stand by reducing the spread of insects and disease, combined with commercial thinning of the planted understory in 3 units or sub-units ranging from 107 to 228 acres, for a total of 517 acres.

- Proposed in older ponderosa pine plantations that have a residual overstory of Douglas-fir that are heavily infested with mistletoe.

Units would not be treated with prescribed fire following harvest. Slash would be whole-tree yarded during harvest to reduce fuel loadings.

Improvement Harvest

Improve tree species composition and forest health by removing mostly smaller trees of less desirable species on 49 units or sub-units ranging in size from 3 to 184 acres for a total of 2,303 acres.

- Proposed in lower elevation ponderosa pine/Douglas-fir stands including old growth units that are being treated to enhance the residual old and large diameter trees. Many units proposed for this type of treatment are in alignment to be managed as uneven-aged stands.
- Thin the understory from below by reducing multiple layers to a single layer, reducing potential ladder fuels and spruce budworm habitat.
- Thin the overstory from above to favor retention of the best tree crown classes and largest tree components.
- Breakup the homogenous and continuous horizontal and vertical structures to reduce crown fire hazard.
- Units would be treated with prescribed burning following harvest. Slash would be yarded out of the units during harvest to reduce fuel loading.

Non-Commercial Thinning Following Commercial Harvest

Commercial harvest units will be assessed following completion of logging to determine additional non-commercial treatment needs prior to burning (if applicable). Could potentially occur on up to 3,580 acres.

- Treatments may include, but are not limited to, slash-pull back from leave trees, thinning, or slashing of smaller diameter conifers.
- Retain some suitable conifer thickets for hiding cover and structural diversity.
- Slash would be hand-piled and/or lopped and scattered, and units would be treated with prescribed burning following harvest and thinning.

Plantation Thinning

Non-commercial hand thinning of plantations containing smaller diameter trees to reduce density and increase growing space for the healthiest, dominant trees in 26 units ranging from 3 acres to 90 acres for a total of 427 acres.

- Proposed in young plantations and areas of natural regeneration initiated by the Gold 1 fire in 2003.
- Slash would be lopped and scattered, unless a fuel hazard would result, in which case slash would be hand-piled within the unit and burned.

Mechanical Thinning / Fuels Reduction

Mechanical thinning of plantations (many of them terraced) that cannot be accessed with modern logging systems in 5 units ranging from 5 to 21 acres for a total of 64 acres.

- Thinned with a steep-slope feller-buncher with a masticating head, or similar equipment. Trees to be thinned would be ground into chips and chunks and left on-site.

- Units would not be treated with prescribed burning.

Tree Planting

Hand planting of conifer seedlings in regeneration harvest units (clearcut, seed-tree, shelterwood, and group selection), if sufficient natural regeneration cannot be ensured in up to 2,198 acres.

- Regeneration units will be examined two years following harvest to determine natural seedling density and species composition.
- If natural regeneration is insufficient, then the site would be planted with species determined by aspect and elevation. Seedlings to be planted will be grown from local stock.
- Any prescribed fire in these units would occur prior to planting.

Meadow Restoration

Restoration treatments of native grasslands infested with knapweed and other weeds and, in some areas, encroached by conifers in 7 units ranging from 6 to 28 acres, for a total of 84 acres.

- Treat grasslands with herbicide and/or biocontrol agents to reduce invasive plant populations.
- Once invasive plant treatments have been determined effective, encroaching conifers would be felled, lopped, and scattered.
- Prescribed fire may be used following treatments if approved by Forest Botanist.

Whitebark Pine Daylighting

Non-commercial slashing of competing conifers from within a certain radius around whitebark pine trees in 7 units ranging from 8 to 214 acres for a total of 777 acres.

- Units 86, 119, and 120 will feature a research project that will assess the effectiveness of daylighting and other treatments on whitebark pine. These units will receive some combination of burning and daylighting, as well as have a control established.
- The remaining (non-research) whitebark pine daylighting units will not be underburned following treatment. Excessive slash will be hand piled and burned.

Prescribed fire associated with commercial harvest

Pile burning and/or low-intensity underburning in many commercial and non-commercial units under desirable conditions to reduce remaining surface fuels. Could potentially occur on up to 4,440 acres within commercial units depending on post-harvest conditions.

- Helps prepare sites for natural regeneration or planting.
- Phased approach over 10 to 15 years.
- Burning would generally occur in the spring or fall when fuel conditions meet prescriptions.

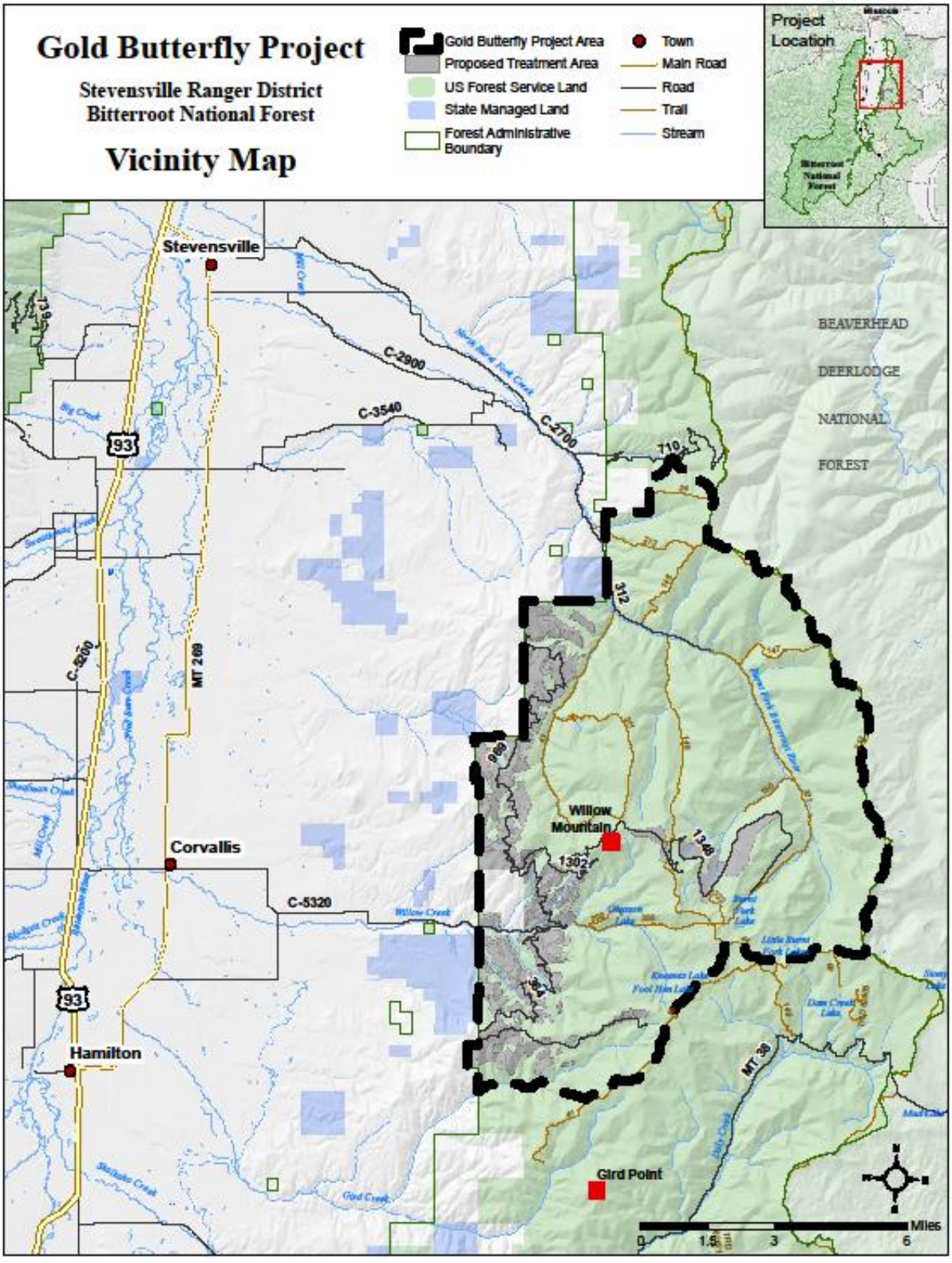
Maintenance Burn

Low intensity burns designed to mimic historically more frequent low intensity wildfire to maintain fire on the landscape, reduce fuels, and enhance native vegetation in 11 units ranging from 5 acres to 207 acres for a total of 414 acres.

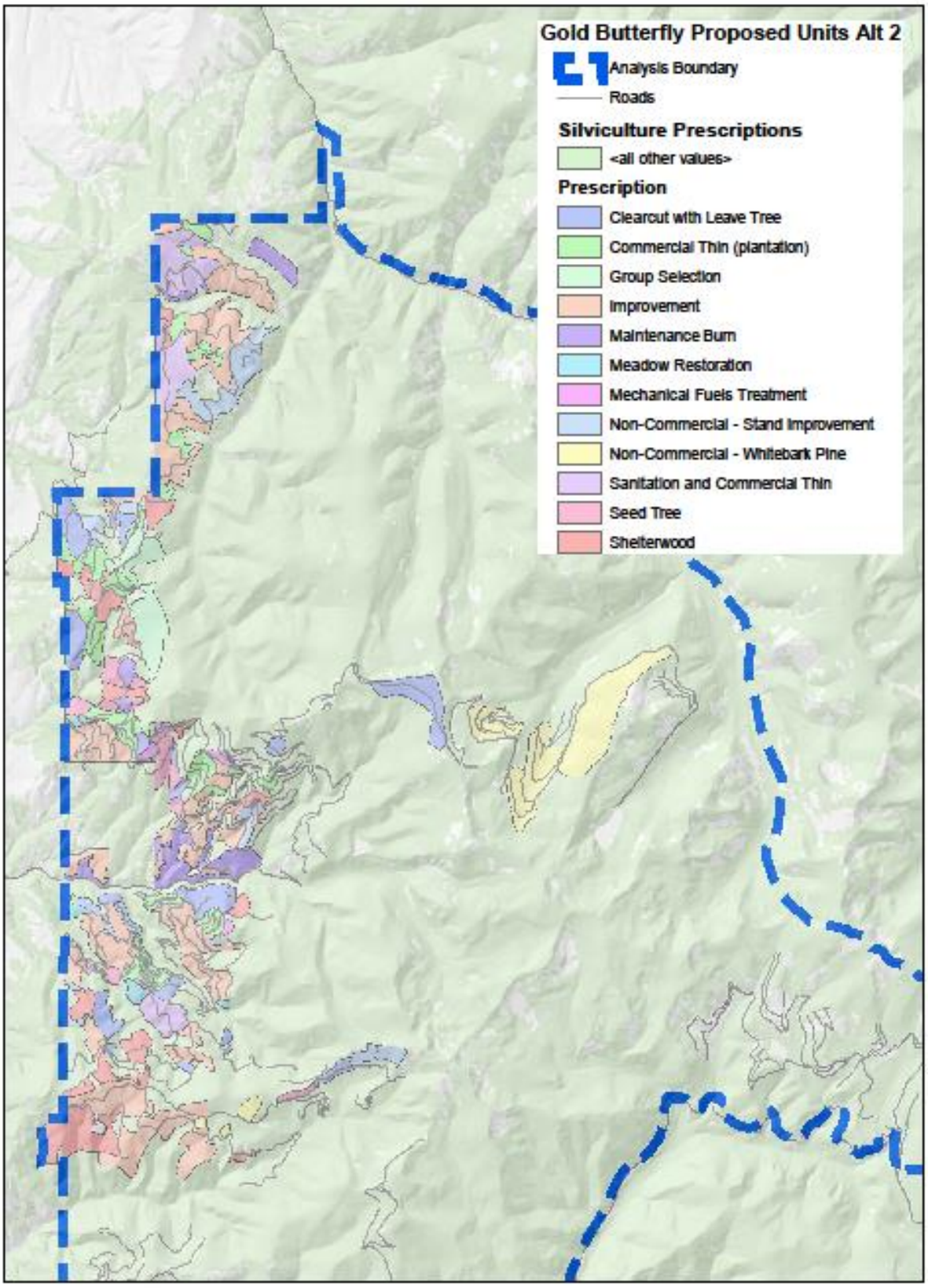
- Units would not have pre-fire treatments, such as timber harvest or non-commercial thinning.
- Currently open forest stands or grasslands that would benefit from underburning without pre-work.

Appendix B – Grizzly Bear Maps

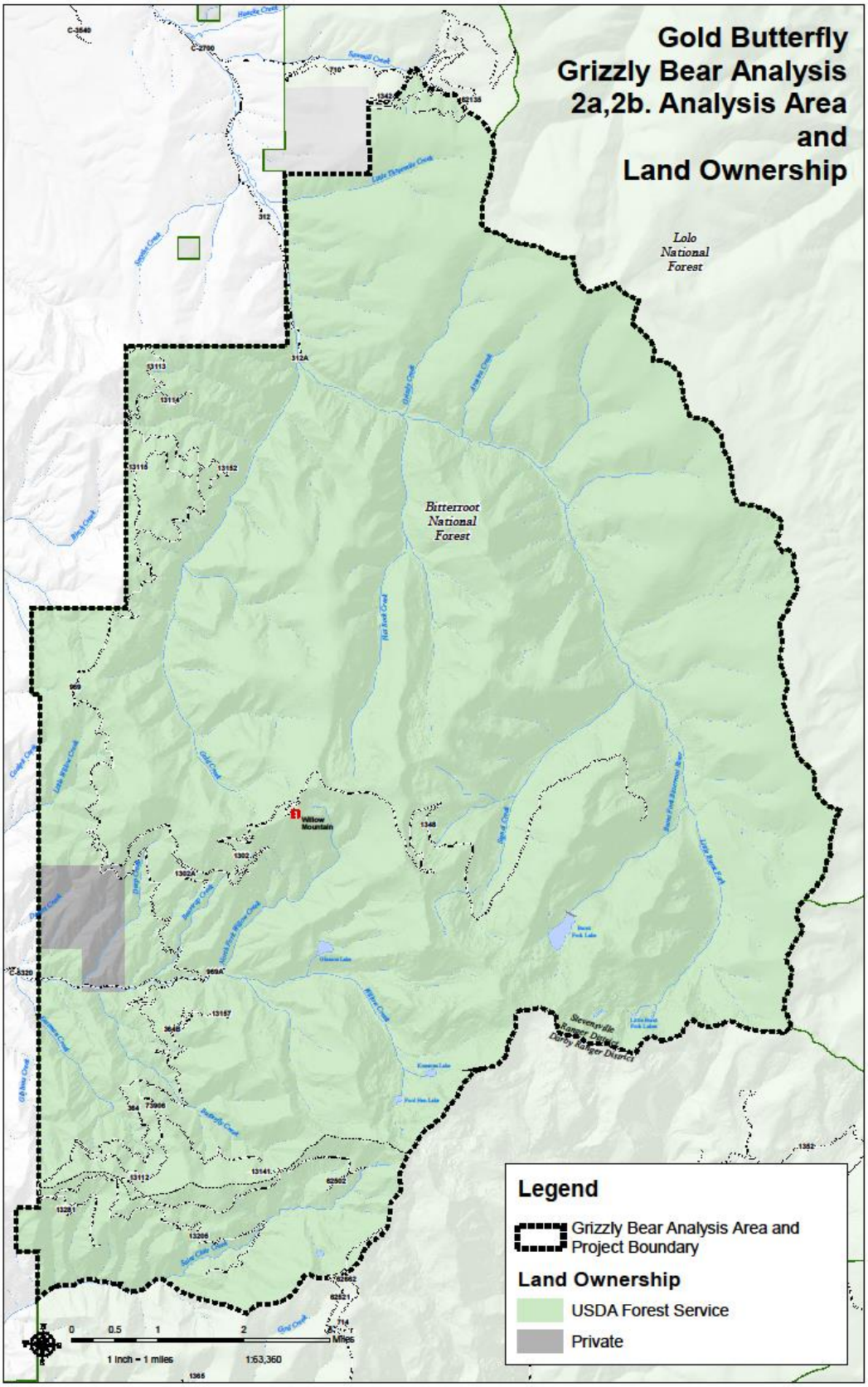
Map B-1. Project Vicinity Map



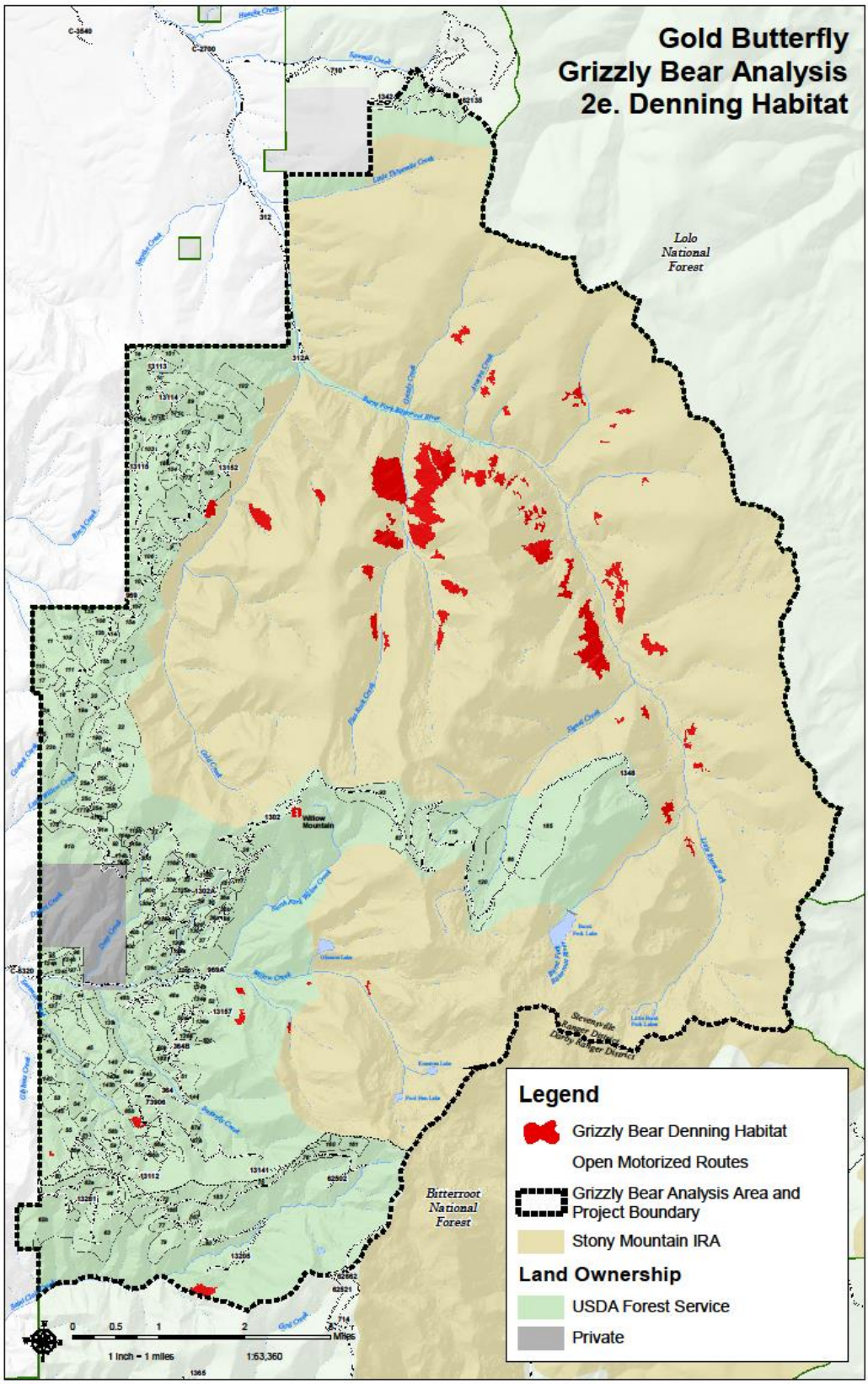
Map B-2. Gold-Butterfly Project Map



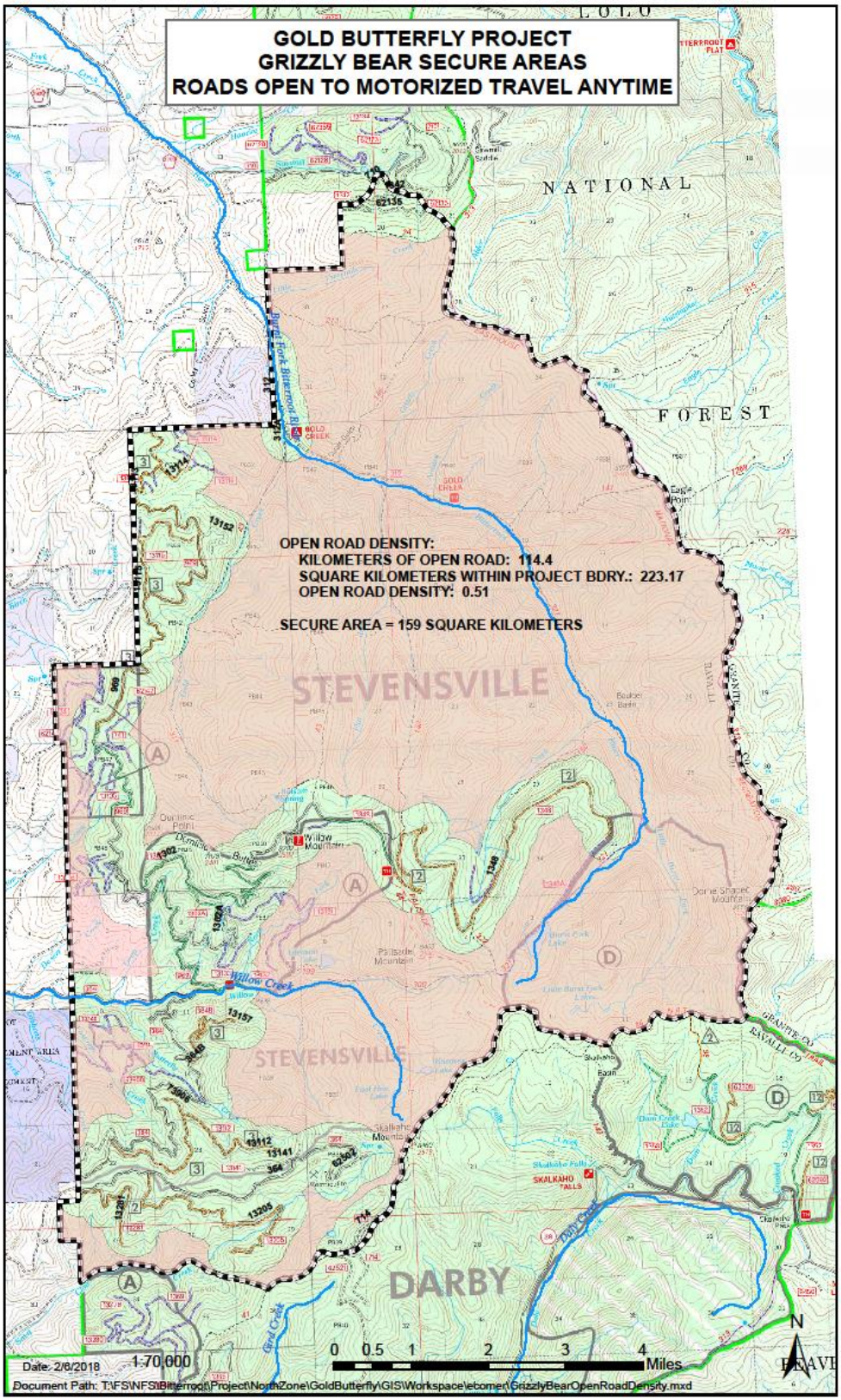
Map B-3. Grizzly Bear Action Area and Ownership



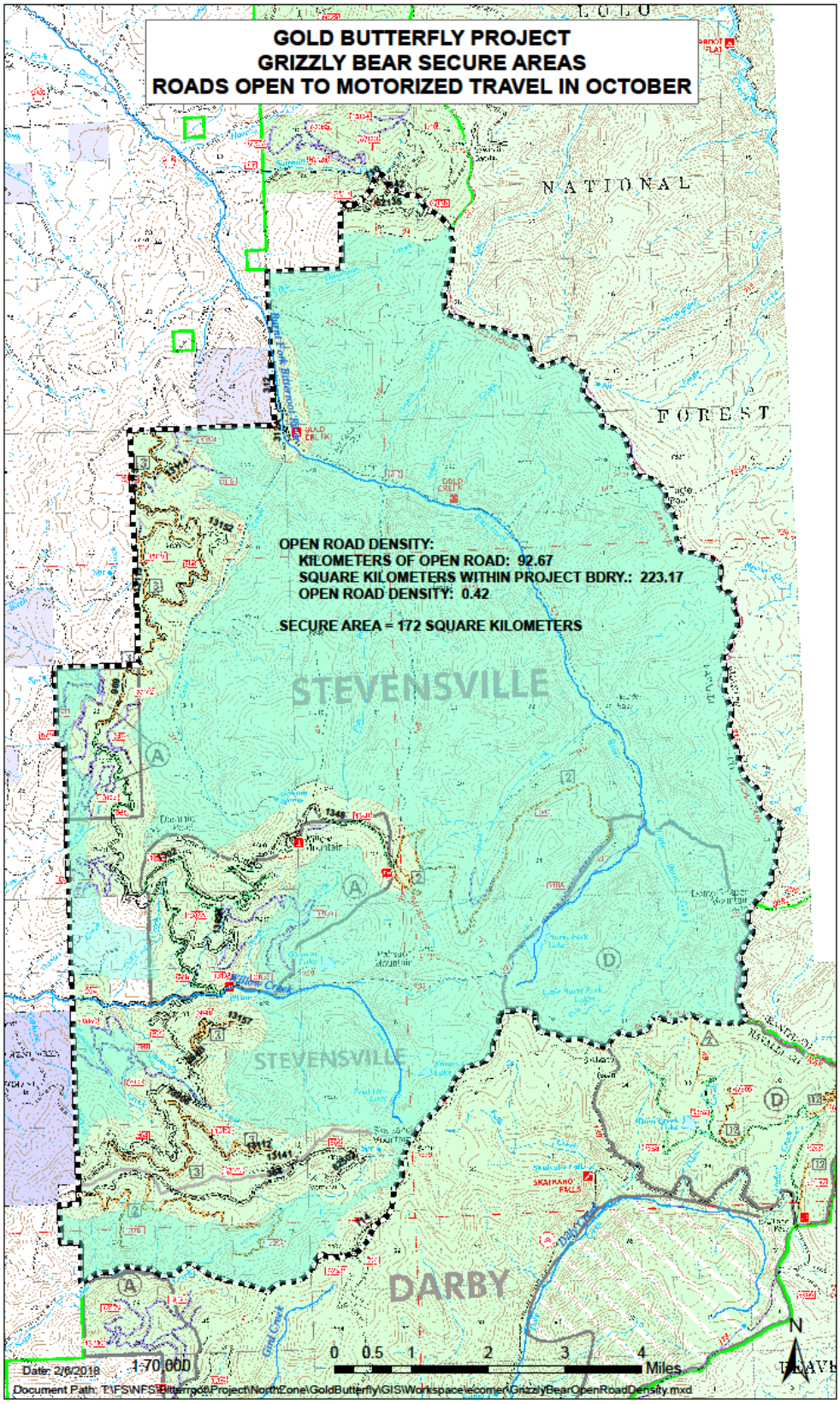
Map B-4. Grizzly Bear Denning Habitat in the Gold-Butterfly Project Area



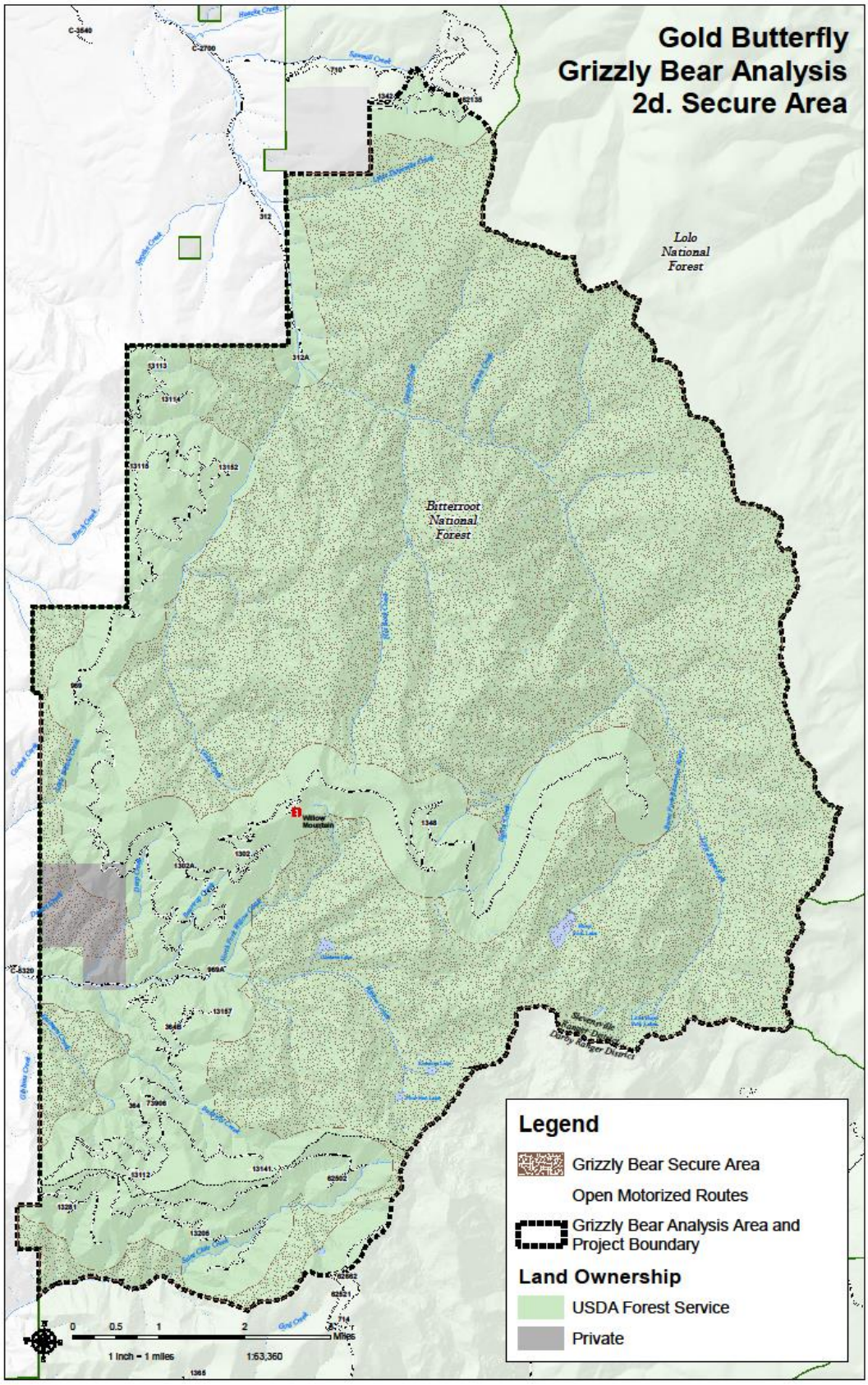
Map B-5. Grizzly Bear Motorized Route Density and Open Routes in Summer



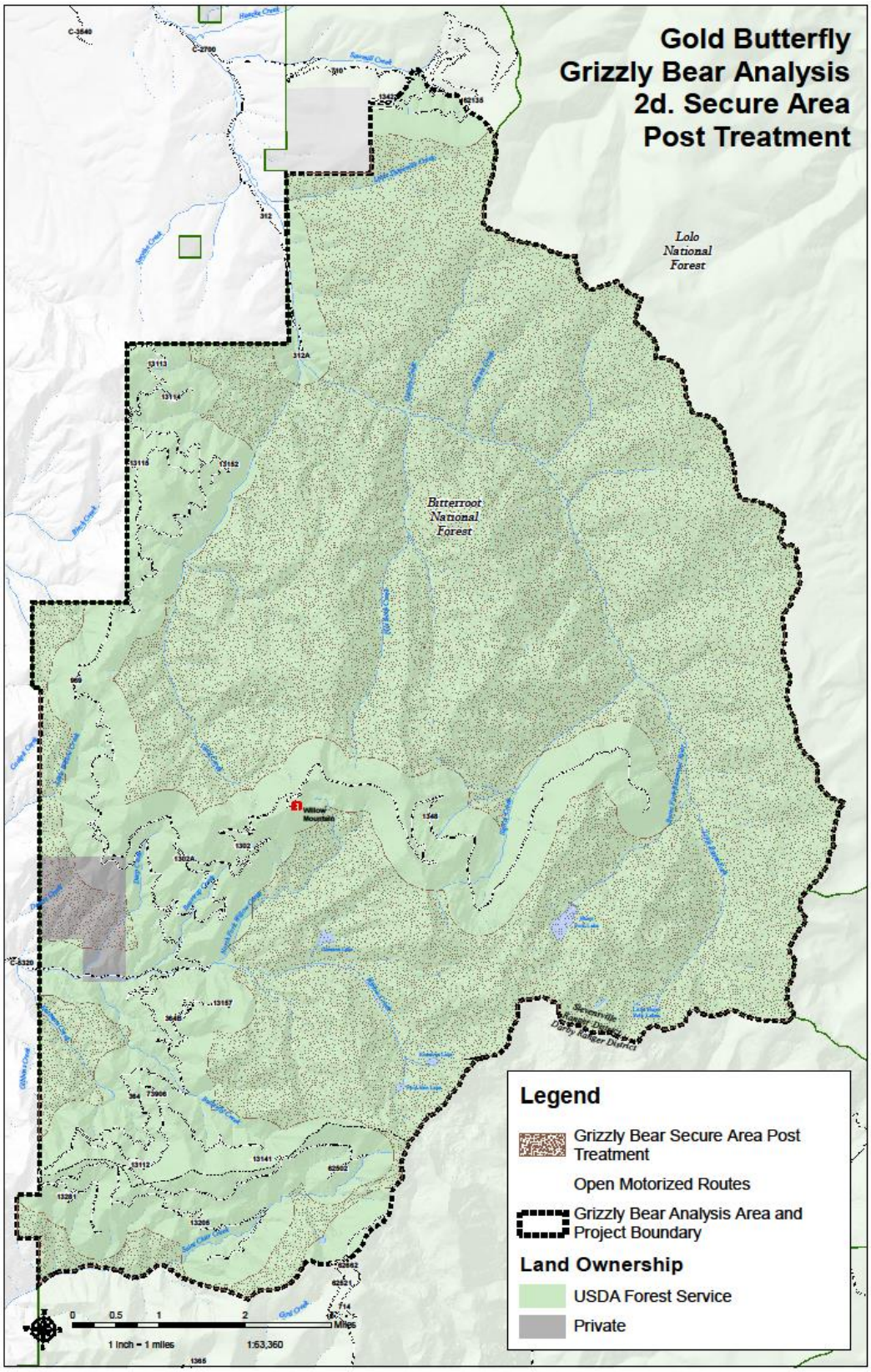
Map B-6. Open Motorized Route Density and Roads open to Motorized Travel in October



Map B-7. Grizzly Bear Secure Area Summer



Map B-8. Grizzly Bear Secure Area Summer, Post Treatment



Appendix C - Contract Language for Food Storage Order and Restricting Firearm Use for Gold Butterfly Project

C 6.24# - SITE SPECIFIC PROTECTION MEASURES (04/2004)

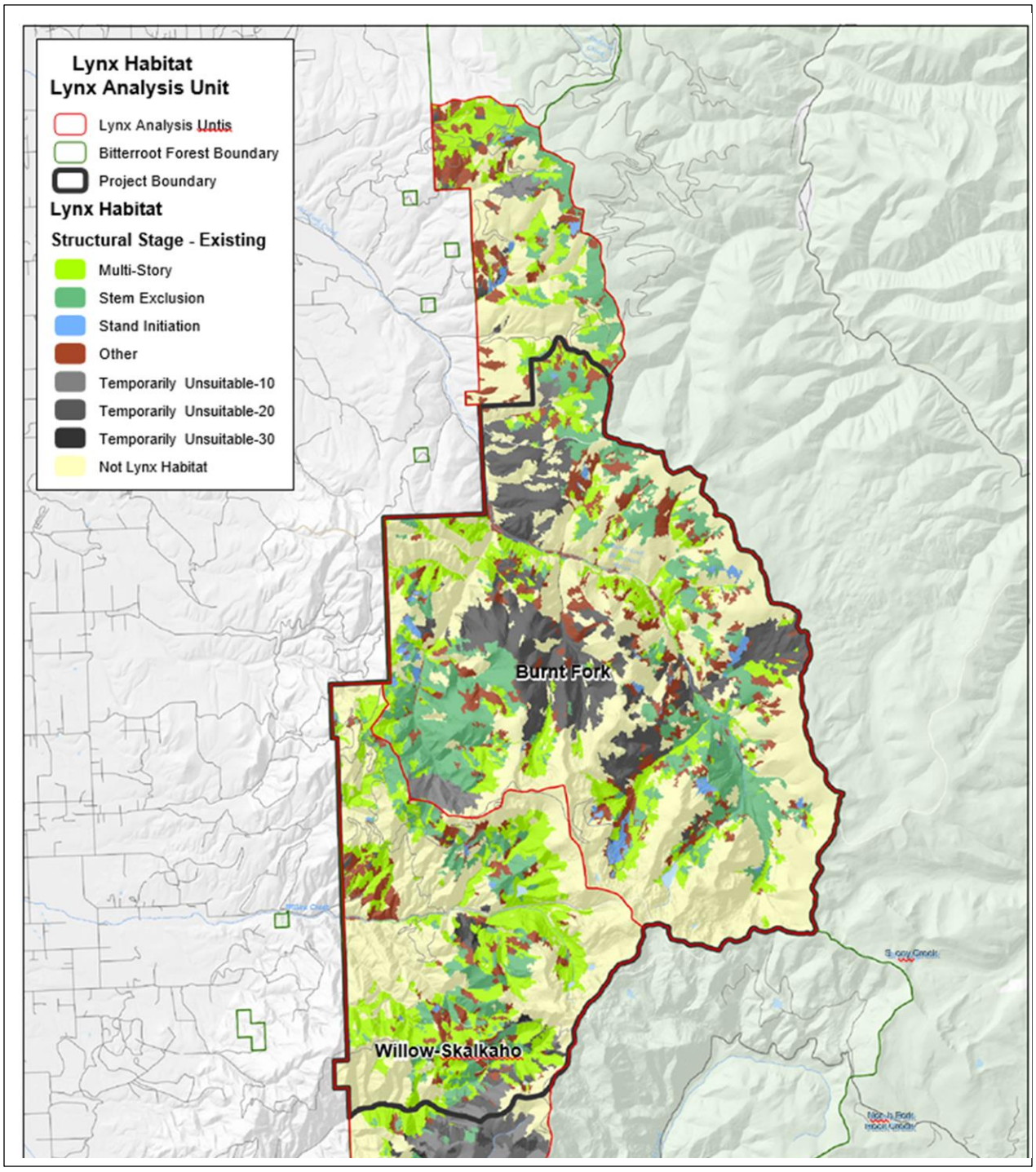
Wildlife and Botanical Protection Measures: Food and other garbage associated with all activities on this project must be stored in a vehicle or other bear-proof container from 3/31 – 12/1.

C5.41# - CLOSURE TO USE BY OTHERS (3/07).

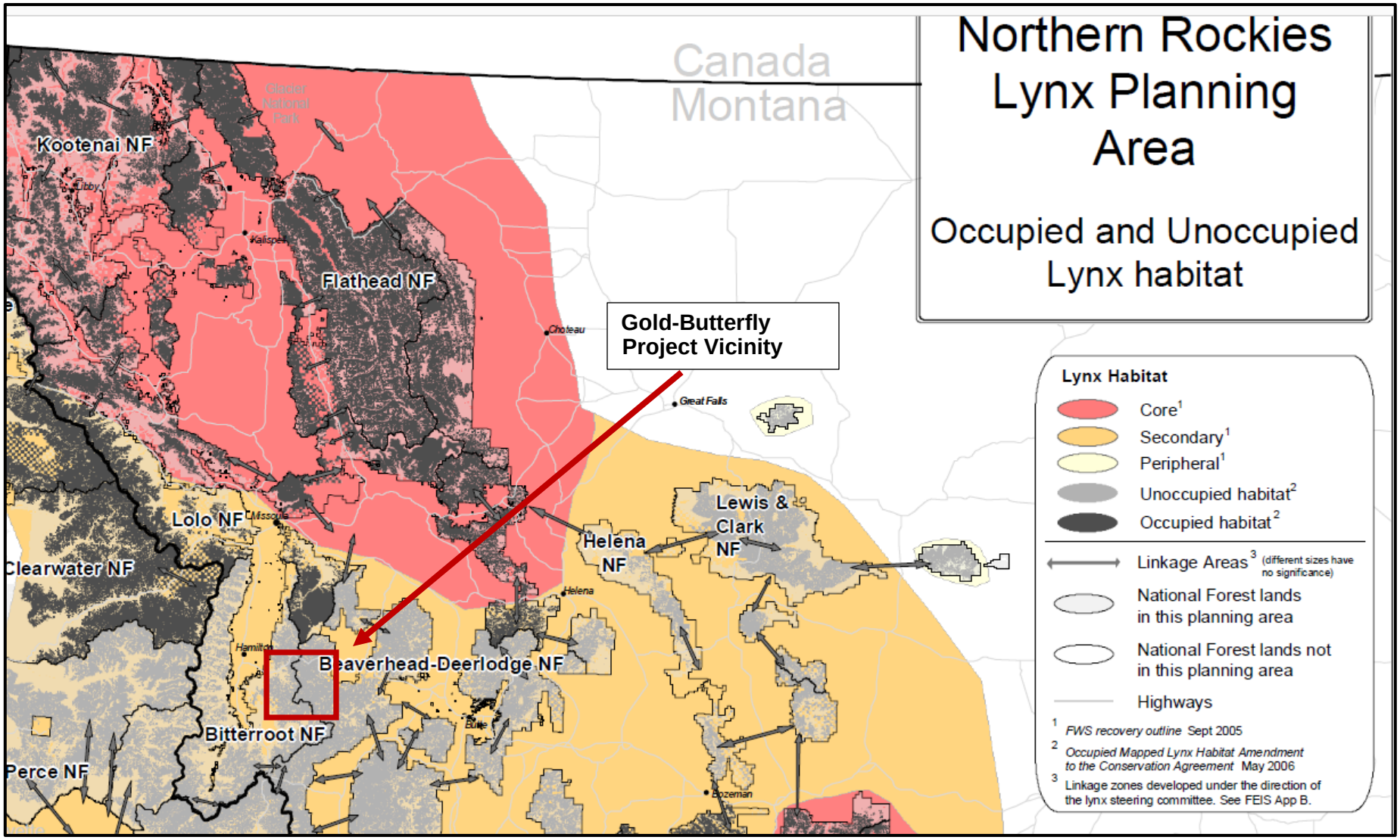
During the period October 1 to December 1 when Purchaser's Operations are in areas otherwise closed to motorized vehicles, Purchaser shall not be permitted to hunt, transport hunters, discharge firearms or transport big game animals with vehicles within the closed areas.

Appendix D – Canada Lynx Maps

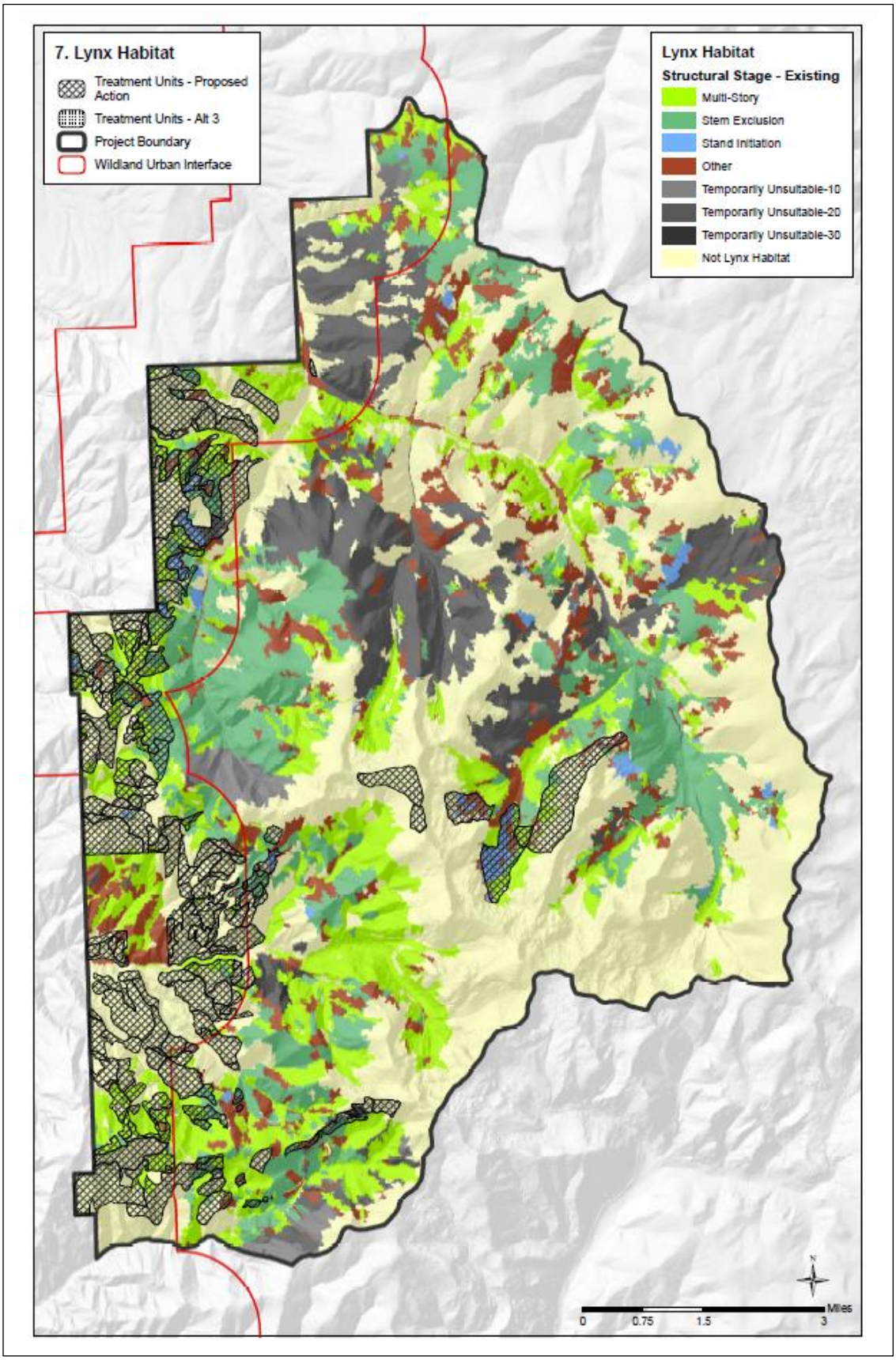
Lynx Analysis Units



Occupied and Unoccupied lynx habitat in the Gold-Butterfly Project Vicinity



Modeled Lynx Habitat in the Gold Butterfly Project Area, Existing Condition



Appendix E – NRLMD Standards and Guidelines Table

Northern Rockies Lynx Management Direction
Standards & Guidelines Consistency Evaluation Table for
Gold-Butterfly Project Activities

For those areas identified as occupied lynx habitat in the Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement (USDA Forest Service et al. 2006), management direction are the standards and guidelines displayed below. As stated in the ROD (p. 29) unoccupied forests should consider this management direction.

Northern Rockies Lynx Management Direction	**Is direction applicable to this project and has it been met** **(Yes or No and Met or Not Met)?** **Where direction is applicable but has not been met, explain the reason(s).**
ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL) *The following objectives, standards and guidelines apply to management projects in lynx habitat in lynx analysis units (LAU) and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use*	
Standard[43] ALL S1 New or expanded permanent developments[33] and vegetation management projects[48] must maintain[26] habitat connectivity[16] *in an LAU[21] and/or linkage area[22].*	This Standard is applicable, and is met. The Gold Butterfly Project does not propose new or expanded permanent development. The project would maintain habitat connectivity in both LAUs. No lynx linkage areas have been identified in or near the project area.
Guideline[15] ALL G1 Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways[18] or forest highways[12] across federal land. Methods could include fencing, underpasses or overpasses.	N/A
Standard LAU S1 *Changes in LAU[21] boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.*	N/A
VEGETATION MANAGEMENT PROJETS (VEG) *The following objectives, standards and guidelines apply to vegetation management projects in lynx habitat in lynx analysis units (LAU). With*	

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments like mineral operations, ski runs, roads and the like. None of the objectives, standards, or guidelines apply to linkage areas.	
Standard VEG S1 – Stand initiation structural stage limits Standard VEG S1 applies to all vegetation management[48] projects that regenerate[37] timber, except for fuel treatment[13] projects within the wildland urban interface (WUI) [49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI see guideline VEG G10. **The Standard:** Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages[44] limit disturbance in each LAU as follows: If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.	This Standard is applicable, and is met. The Early Stand Initiation structural stage currently comprises 25.6% of the Burnt Fork LAU, and 20.4% of the Willow-Skalkaho LAU, mostly as a result of wildfires in the past 20 years. The proposed project would increase these percentages to 26.2% in the Burnt Fork LAU and 24.1% in the Willow-Skalkaho LAU.
Standard VEG S2 – Limits on regeneration from timber mgmt. projects Standard VEG S2 applies to all vegetation management[48] projects that regenerate[37] timber, except for fuel treatment[13] projects within the	This Standard is applicable, and is met.

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Timber management projects shall not regenerate[37] more than 15 percent of lynx habitat on NFS lands in an LAU in a ten-year period.	No regeneration harvests have occurred within either LAU in the last 10 years. The proposed project would increase percentage of lynx habitat regenerated by timber management projects to 0.4% in the Burnt Fork LAU, and 4.4% in the Willow-Skalkaho LAU.
Standard VEG S5 – Precommercial thinning limits Standard VEG S5 applies to all precommercial thinning[35] projects, except for fuel treatment[13] projects that use precommercial thinning as a tool within the wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Precommercial thinning projects that reduce snowshoe hare habitat, may occur from the stand initiation structural stage[44] until the stands no longer provide winter snowshoe hare habitat only:	This Standard is applicable, and is met. The proposed project would reduce hare habitat on 136 acres of lynx habitat in the Stand Initiation structural stage outside the WUI with non-commercial thinning (daylighting whitebark pine). Since the purpose of these treatments is to restore whitebark pine, these treatments are allowed under Exemption 6 to VEG S5. The proposed project would also reduce hare habitat on 103 acres of lynx habitat in the Stand Initiation structural stage within the WUI. These treatments are allowed under the fuel treatment in the WUI exception to VEG S5.

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
1. Within 200 feet of administrative sites, dwellings, or outbuildings; or 2. For research studies[38] or genetic tree tests evaluating genetically improved reforestation stock; or 3. Based on new information that is peer reviewed and accepted by the regional levels of the Forest Service and FWS, where a written determination states: a. that a project is not likely to adversely affect lynx; or b. that a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat; or 4. For conifer removal in aspen, or daylight thinning[5] around individual aspen trees, where aspen is in decline; or 5. For daylight thinning of planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat[50] is retained; or 6. To restore whitebark pine.	
Standard VEG S6 – Multi-storied stands & snowshoe hare horizontal cover Standard VEG S6 applies to all vegetation management[48] projects, except for fuel treatment[13] projects within the wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation:	This Standard is applicable, and is met. The proposed project would not reduce hare habitat in the MMS lynx habitat structural stage outside the WUI.

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late successional forests[29] may occur only: 1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or 2. For research studies[38] or genetic tree tests evaluating genetically improved reforestation stock; or 3. For incidental removal during salvage harvest[41] (e.g. removal due to location of skid trails). (NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).	The proposed project would reduce hare habitat on 886 acres of lynx habitat in the MMS structural stage within the WUI. These treatments are allowed under the fuel treatment in the WUI exception to VEG S6.
Guideline VEG G1 – Lynx habitat improvement Vegetation management[48] projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority should be given to stem-exclusion, closed-canopy structural stage[44] *stands for lynx or their prey (e.g. mesic, monotypic lodgepole stands).*	N/A

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Winter snowshoe hare habitat[50] should be near denning habitat[6].	
Guideline VEG G4 – Prescribed Fire Prescribed fire[34] activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.	N/A
Guideline VEG G5 – Habitat for alternate prey species Habitat for alternate prey species, primarily red squirrel[36], should be provided in each LAU.	This Guideline is applicable, and is met. The proposed project would retain abundant habitat for red squirrels in both LAUs.
Guideline VEG G10 – Fuel treatments in the WUI *Fuel treatment projects in the WUI*[49] *as defined by HFRA*[17, 48] *should be designed considering standards VEG S1, S2, S5, and S6 to promote lynx conservation.*	This Guideline is applicable, and is met.
Guideline VEG G11 – Denning habitat *Denning habitat*[6] *should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris*[4]*, piles, or residual trees to provide denning habitat*[6] *in the future.*	This Guideline is applicable, and is met. The proposed project would retain abundant, well-distributed denning habitat in both LAUs.
LIVESTOCK MANAGEMENT (GRAZ) T*he following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAU). They do not apply to linkage areas.*	
Guideline GRAZ G1 – Livestock grazing and openings	N/A

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.	
Guideline GRAZ G2 – Livestock grazing and aspen In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.	N/A
Guideline GRAZ G3 – Livestock grazing and riparian areas & willow carrs In riparian areas[40] and willow carrs[3], livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28] , similar to conditions that would have occurred under historic disturbance regimes.	N/A
Guideline GRAZ G4 – Livestock grazing and shrub-steppe habitats In shrub-steppe habitats[42], livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs[21], to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.	N/A
HUMAN USE PROJETS (HU) The following objectives and guidelines apply to *human use projects, such as special uses (other than grazing), recreation management, roads, highways, mineral and energy development, in lynx habitat in lynx analysis units (LAU),* subject to valid existing rights. *They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.*	
Guideline HU G1 – Ski area expansion & development, inter-trail islands When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris[4], so winter snowshoe hare habitat[49] is maintained.	N/A

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline HU G2 – Ski area expansion & development, foraging habitat When developing or expanding ski areas, foraging should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.	N/A
Guideline HU G3 – Recreation developments Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat[23].	N/A
Guideline HU G4 – Mineral & energy development For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.	N/A
Guideline HU G5 – Mineral & energy development, habitat restoration For mineral and energy development sites and facilities that are closed, a reclamation plan that restores[39] lynx habitat should be developed.	N/A
Guideline HU G6 – Roads, upgrading Methods to avoid or reduce effects to lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.	N/A
Guideline HU G7 – Roads, locations New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity[16]. New permanent roads and trails should be situated away from forested stringers.	N/A
Guideline HU G8 – Roads, brushing Cutting brush along low-speed[25], low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.	This Guideline is applicable and may not be met.

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
	Some existing roads would be brushed to allow access for logging equipment and log trucks, which would exceed the width needed for public safety. Most of these roads would revegetate over time.
Guideline HU G9 – Roads, new On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	This Guideline is applicable, and is met. The proposed project would construct 6.4 miles of system road, all of which would be closed to public use. The proposed project would decommission 5.8 miles of existing system roads and 16.5 miles of undetermined roads, and store 5 miles of system roads. All of these roads would be closed to public motorized use. The proposed project would construct 7.7 miles of temporary road, 8.5 miles of tracked line machine trail and 1.1 miles of temporary skid trail. All of these temporary roads and trails would be obliterated after use.
Guideline HU G10 – Roads, ski area access *When developing or expanding ski areas and trails, access roads and lift termini to maintain and provide lynx security[10] habitat.*	N/A
Guideline HU G11 – Snow compaction Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction[1], unless designation serves to consolidate use and improve lynx habitat. This is calculated on an LAU basis, or on a combination of immediately adjacent LAUs.	N/A

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No and Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline.	
Guideline HU G12 – Winter access for non-recreation SUP & mineral & energy development Winter access for non-recreation special uses, and mineral and energy exploration and development, should be limited to designated routes[8] or designated over-the-snow routes[7].	N/A
LINKAGE AREAS (LINK) The following objective, standard and guidelines apply to *all projects within linkage areas*, subject to valid existing rights.	
Standard LINK S1 – Highway or forest highway construction in linkage areas When highway[18] or forest highway[12] construction or reconstruction is proposed in linkage areas[22], identify potential highway crossings.	N/A
Guideline LINK G1 – Land exchanges NFS lands should be retained in public ownership.	N/A
Guideline LINK G2 – Livestock grazing in shrub-steppe habitats *Livestock grazing in shrub-steppe habitats[42] should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.*	N/A